EXAMINING THE THEORETICAL RELATIONSHIPS BETWEEN SUPPORT NEEDS AND ADAPTIVE BEHAVIOR: A CONSTRUCT ANALYSIS OF CHILDREN WITH INTELLECTUAL DISABILITY

By

Submitted to the graduate degree program in Special Education and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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Chairperson Michael Wehmeyer, Ph.D.

_____
William Skorupski, Ph.D.

_____
Tom Skrtic, Ph.D.

_____
Ann Turnbull, Ed.D.

_____
Anthony Antosh, Ed.D.

Date Defended: December 5, 2013

The Dissertation Committee for Emily S. Obremski certifies that this is the approved version of the following dissertation

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Chairperson, Michael Wehmeyer, Ph.D.

Date approved:

ABSTRACT

This dissertation is composed of four stand-alone yet linked chapters. Chapter 1 provides an overview of the theoretical underpinnings of the constructs of adaptive behavior and support needs and their evolution throughout history. There is also a review of the limited literature available examining the relationship between the two constructs that demonstrates the incongruity among outcomes. Chapter 2 examines the construct validity of two new instruments developed by the American Association on Intellectual and Developmental Disabilities the *Diagnostic Adaptive Behavior Scale (DABS)* and the *Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children).* The chapter provides evidence for the construct validity of the two instruments to measure the prospective constructs of adaptive behavior and support needs through confirmatory factor analysis. Chapter 3 builds on the results from Chapter 2 and goes one step further by examining the theoretical relationship between the constructs of adaptive behavior and support needs in children ages 5-16 with intellectual disability through structural equation modeling. The findings suggest that while the two constructs are intimately related, they do in-fact represent two distinct constructs. Finally, Chapter 4 summarizes the previous chapters and draws from them conclusions and implications for future research, policy, and practice for children with intellectual and developmental disabilities.

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In part this thesis examines the support needs of people with intellectual disabilities; however, as with most enduring principles and theory in the field of disabilities, those that improve the quality of life for people with disabilities also improve the quality of life for people without disabilities. This thesis could not have been possible without the supports provided to me by numerous individuals.

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Chapter 1: Introduction

Perspectives on Strong Theory

The value of strong theory is that it can be used to explore particular phenomena and identify interrelationships among constructs. A construct can be defined as "an abstract or general idea that is formed by arranging parts or elements based on observed phenomena, in the context of a theory" (Schalock et al., 2007, p. 116). The establishment of strong theory has changed significantly over the past century, both in definition and evaluation (Donaldson & Lipsey, 2006). It was once believed that to generate strong theory within the social sciences one simply had to formulate a hypothesis, test that hypothesis in a series of empirical studies, and utilize the data to endorse the postulated hypothesis as either true or false. Thus, "repeated evidence consistent with the same hypothesis" (Smith, 2004, p. 397) provided evidence of strong theory. This justificationist perspective led many to interpret theories as unequivocal, scholarly products that could only be applied or expanded upon (Weick, 1995). As a consequence, the validation of sound theories represented by newly designed instruments required researchers to simply identify and expand the nomological network in which the construct occurred. The nomological network is a series of laws that produced the theoretical construct and related it to other constructs (Cronbach & Meehl, 1955). Thus, these finite laws provided the construct validity of a new instrument and the theory supporting it.

In contrast to the above beliefs, advances in science have generated a disparate perspective on strong theory definition and evaluation that is espoused by the nonjustificationist perspective. According to the nonjustificationist perspective, the evolution of strong theory is an on-going process of generating and investigating hypotheses to reach greater approximations of understanding; hence, confirmation of hypotheses alone does not represent strong theory (Sutton & Staw, 1995). According

to this perspective, theory can neither be proven nor disproven simply refined over time (Strauss & Smith, 2009). “There is now a greater appreciation for the indeterminate on-going nature of theory building, theory revision, and scientific criticism” (Smith, 2005, p. 387). Within the justificationist perspective nomological networks assumed lawful relationships; however within the nonjustificationist perspective, relationships between theoretical constructs simply refine or expand the theoretical landscape. Just as the development of sound theory (i.e. theorizing) is perceived as an on-going iterative process within the nonjustificationist perspective, so too is the validation of theory-based instruments. Once interpreted as a checklist of validity types (e.g. content, criterion, and construct validation studies) to be crossed off in order to demonstrate instrument validation, validation has been redefined as a process of on-going analytic studies. According to Strauss and Smith (2009), “validity is an overly evaluative judgment of the degree to which evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions on the basis of test scores” (p. 7). Prior research was designed to purely identify relationships between theories. However, within the nonjustificationist perspective, evidence of strong theory goes even further and explains why and how theories are linked.

In the field of special education, there is a level of uncertainty regarding the theoretical relationship between the constructs of adaptive behavior and support needs. According to Thompson and colleagues, “Support needs and personal competence [e.g., adaptive behavior and similar constructs] are related but distinct constructs, and both need to be adequately assessed” (Thompson et al., 2002, p. 402). To evaluate the theoretical interrelationship(s) between these two constructs, the operational definitions of adaptive behavior and support needs must first be independently examined and confirmed (Wehmeyer et al., 2008). Following independent evaluation, the nature of the correspondence between the two theoretical constructs can be distinguished using statistical analyses

designed to examine relationships among latent constructs. The following study will evaluate the construct validity of two new measures developed by the American Association on Intellectual and Developmental Disabilities (AAIDD), one that measures adaptive behavior in children and a second that measures the support needs of children. The *Diagnostic Adaptive Behavior Scale (DABS)* and the *Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children)* were developed to operationalize the constructs of adaptive behavior and support needs, respectively. These instruments are tailored to measure each construct in children ages 5 to 16 with intellectual disability. The proceeding study will first validate the factor structure of each instrument and then examine the direct relationship between the two theoretical constructs using structural equation modeling (Klein, 2005). Through these analyses, we hope to distinguish the unique contributions of each instrument in measuring both adaptive behavior and support needs, and in so doing to inform and refine these theoretical constructs.

Adaptive Behavior: Evolution in the Diagnostic Criteria for Intellectual Disability

Adaptive behavior prior to 1905.

"Adaptive behavior is a dynamic construct, influenced by cultural norms and age-related expectations. Its nature and the ways it is applied have been affected by the zeitgeist of the times" (Horn & Fuchs, 1987). Before the establishment of the intelligence test, differences in physical appearance, and maladaptive behaviors were used to identify people with intellectual disability. The history of intellectual disability dates back to as early as 4,000,000 B.C. in the little village of Shanidar in northern Iraq where the remains of the oldest known human with an intellectual disability were discovered by Ralph Solecki in 1957. Shanidar I, otherwise known as "Nandy," was estimated to have lived 44,000 years ago with both physical and intellectual disability. It was believed that Nandy's right arm was amputated due to lack of use or subsequent injury from an underdeveloped

shoulder-blade, collarbone, and humerus at birth and that he was partially or completely blind in his left eye due to a blow to left side of his head. Intellectual disability was assumed based on the extensive damage to the left side of his skull that had healed well before his death. Nandy lived approximately 40 years, indicating that he was a well-cared for and accepted member of his tribe. "The stone heap over his remains, and the mammal food remains, show that even in death his person was an object of some esteem if not respect" (Solecki, 1971, p. 196). Nandy's remains currently reside at the U.S. Smithsonian National Museum of Natural History. Like Nandy, people living during this period, in primitive societies with mild forms of intellectual disability could live comfortably with their peers unnoticed. On the other hand, babies with more significant disabilities were subject to infanticide or died at an early age as a result of abandonment, maltreatment, or disease.

The earliest classification system of *unsoundness of mind* was discovered around 549 B.C. in Athens in *Alcibiades II*, a document thought to be written by Plato or one of his students. The most afflicted persons were identified as *mad*, while those less affected were called *wrong-headed*; those with the mildest of aversions were identified as *innocents, incapables,* or *dummies* (Scheerenberger, 1983). The next classification system did not surface until the early 1800's when medicine began to play a role in the identification and treatment of intellectual disability. Known for his moral treatment of inmates at the Bicêtre Hospital in Paris, Phillipe Pinel identified five categories of mental illness: a) melancholia or delirium, b) mania without delirium, c) mania with delirium, d) dementia, or the abolition of the thinking facility, and e) idiotism, or obliteration of the intellectual faculties and affections (Huertas, 2008). Pinel defined idiotism as "a defective perception and recognizance of objects, is a partial or total abolition of the intellectual and active faculties" (Pinel, 1806, p. 165). In 1846, Jean Etienne Dominique Esquirol, a student of Pinel, further dissected the category of idiotism

into two levels: imbecile and idiot. Imbeciles were capable of "enjoying the use of the intellectual and affective faculties [but] …they do not make a like use of their understanding" (Scheerenberger, 1983, p. 54). Comparatively, idiots were described as lacking any intellect or moral faculties. "They are incapable of exercising a corrective influence over each other;…they cannot control their senses….Having no ideas, and thinking not, they have nothing to desire; therefore have no need for signs, or speech" (as cited in Scheerenberger, 1983, p. 54). Idiots and imbeciles were further categorized into levels based on evaluations of speech and language. Through his definitions, Esquirol began to examine skills reminiscent of what we define adaptive behavior to be today. Other terms and descriptors throughout history were used to describe adaptive behavior as a characteristic of people with intellectual disability: in 1802 Itard described Victor the Wild Boy of Aveyron as "destitute of memory or judgment" (p. 21); in 1819 Haslam discussed challenges of "adapting to our means" in his publication *Sound Mind*; in 1837 Edouard Seguin used the term *social competency* to describe people with intellectual disability; 1843 Voisin looked to understand "social norms" and finally Samuel Gridley Howe first used the term *adaptability* around 1858 (Nihira, 1999). Hence, limitations in adapting to the daily demands of human life have been a distinguishing characteristic of persons with intellectual disability throughout history (Borthwick-Duffy, 2007).

Intelligence testing movement.

In 1890, James Cattell introduced "mental tests" to the United States (Scheerenberger, 1983) and soon thereafter Henry Herbert Goddard (1908) translated the 1905 Binet-Simon individual test of intelligence to English. Intelligence tests soon became the primary mechanism for classifying what is now known as intellectual disability. Binet's scale of intelligence was intended to identify children with subnormal intelligence who needed to be placed in special classes in Paris, but eventually came to be used to categorize people with intellectual impairments into three levels of severity of

impairment: a) idiot, b) imbecili, and c) moron. Lewis Terman revised the Binet-Simon to create the Stanford-Binet and introduced the intelligence quotient (IQ). Terman used the IQ to classify people into the three levels of severity of intellectual impairment using scores of 50 - 70 (moron), 20 or 25 – 50 (imbecile), and below 20 or 25 (idiot). In 1910 the *American Association for the Study of the Feebleminded* (now AAIDD) based their classification of intellectual disability on Goddard's three levels and in 1915, Fred Kuhlmann, a fellow student of Goddard and Terman at Clark University, introduced the bell curve to the distribution of IQ's which today influences the diagnoses of children and adults with intellectual disability (Scheerenberger, 1983, p. 147). He also identified the average IQ based on age. IQ soon became the primary if not the exclusive diagnostic mechanism for identifying children with intellectual disability replacing social competence and segregating them into special education classrooms or custodial institutions. Intelligence as a single trait (*g* factor), identified by Spearman (1927) became the most widely accepted perception of intelligence. Between 1915 and 1922, 12 U.S. states passed laws requiring special education for children with intellectual disability. In an effort to understand the elusive theoretical underpinnings of adaptive behavior and validate intelligence, studies were performed to identify the theoretical relationship between the two constructs given the similarities in etiology and outcomes.

Keith, Fehrman, Harrison, and Pottebaum (1987) completed a review of the literature to examine the correlation between scores of intelligence and those on a variety of adaptive behavior scales. Twenty-five adaptive behavior scales were examined across 42 studies. Correlation coefficients between the scales of adaptive behavior and intelligence ranged from .03 to .91, but the majority fell within the moderate range (0.4 to 0.6). To further explore the moderate correlation, Harrison, Keith, Fehrman, and Pottebaum (1986) used factor analysis to examine the relationship and found that "adaptive behavior and intelligence are related but separate constructs" (p. 43).

Distinctions between the two constructs include: 1) adaptive behavior scales explore every day behavior while intelligence scales examine cognition, 2) adaptive behavior scales examine typical performance while intelligence scales measure optimal performance, and 3) intelligence scales assume stability while adaptive behavior scales expect changes over time (Meyers, Nihira, and Zetlin, 1979).

Revitalization of adaptive behavior.

Despite the fervor towards intelligence tests, Terman and fellow researcher Fred Kuhlmann, cautioned against overreliance on the IQ score and its application. In 1919, Terman uncovered a problem associated with the test-retest reliability of the intelligence testing instrument indicating the probability of large fluctuations in individual scores. In the 1920's the results and influence of IQ testing came under scrutiny. Among the most outspoken opponents were Walter Fernald, S. D. Porteus, and Edgar Doll, each who challenged the lack of social/environmental influence on the measurement of intelligence. As a consequence, Doll (1936) developed the Vineland Social Maturity Scale (VSMS), which marked the "formal beginning of the measurement of adaptive behavior" (Bruininks, Thurlow, & Gilman, 1987, p. 71). The VSMS measured social competence as divided into successive skills demonstrated by each age group. The domains examined were self-help, self-direction, social relations, locomotion, occupation, and communication (Bradway, 1938). Doll noted "this scale is founded on the assumption that nothing that the individual is or does is significant except in terms of its ultimate social import" (Doll, 1940, p. 162). Thus, individuals diagnosed as having intellectual disability should demonstrate delays in social competence as well as deficits in intellectual functioning. Between the late 1950's and early 1970's greater emphasis was placed on the adaptive behavior approach due to economic prosperity, parental advocacy, legislation and political climate, and the emphasis on training as opposed to custodial care (Horn & Fuchs, 1987).

In 1961, the term adaptive behavior was introduced in the *American Association on Mental Deficiency Classification Manual on Mental Retardation:*

> "Mental retardation refers to sub average general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior" (Herber, 1961, p. 3).

The term *adaptive behavior* was intended to encompass the 1959 definitional domains of: a) maturation, b) learning, and c) social adjustment (Greenspan & Switzky, 2006). Four standard deviation levels were identified for corresponding adaptive behavior levels (i.e. Level I – Mild, Level II – Moderate, etc.). Soon thereafter, the National Institute on Mental Health awarded AAMD and Parsons State Hospital and Training Center grant monies to explore the construct of adaptive behavior as a mechanism for assessment and remediation (Leland, 1972; Nihira, 1999). Subsequent studies generated the *Adaptive Behavior Checklists* (Nihira, Leland & Lambert, 1993), and the *AAMR Adaptive Behavior Scale – School Version* (Lambert, Nihira, & Leland, 1993). With the election of President Kennedy and the establishment of the President's Committee on Mental Retardation (1961), the findings in the *Larry P. v. Riles* (1972) court case mandating additional assessment beyond IQ testing for educational placement, the passage of PL 94-142 requiring educational programming for all children, and AAMD's inclusion of adaptive behavior in the definition of intellectual disability, adaptive behavior research and measurement tools developed rapidly between 1960 and 1980. During this, time assessment in adaptive behavior was used for more than just diagnostics. It was used for programmatic planning and the implementation of interventions (Harrison & Boney, 1995).

Definition of adaptive behavior and structure.

An historic definition of adaptive behavior comes from Herbert J. Grossman in *Classification in Mental Retardation* (1973),

> "Adaptive behavior refers to the quality of everyday performance in coping with environmental demands. The quality of general adaptation is mediated by level of intelligence; thus the two concepts overlap in meaning. It is evident, however, from consideration of the definition of adaptive behavior, with its stress on everyday coping that adaptive behavior refers to what people do to take care of themselves and to relate to others in daily living rather than the abstract potential implied by intelligence" (p. 42).

Ditterline & Oakland (2009) identified three primary sources for the classification and identification of intellectual disability: a) American Association on Intellectual and Developmental Disabilities' (AAIDD) *Intellectual Disability: Definition, Classification and Systems of Supports (11th edition)* (Schalock et al., 2010), b) *DSM-IV-TR (4th edition)* (APA, 2000), and c) the *International Classification of Diseases and Related Health Problems (10th edition)* (World Health Organization, 1992). There is direct agreement between the three organizations as to skills representative of adaptive behavior, described by the current AAIDD classification manual as being "the collection of conceptual, social, and practical skills that have been learned and are performed by people in their everyday lives" (Schalock et al. 2010, p. 45).

For many years, AAIDD has been considered the authority on intellectual disability. As mentioned previously, the introduction of adaptive behavior in the diagnosis of intellectual disability was in 1961. However both the definition of intellectual disability and the construct of adaptive behavior have transformed in subsequent revisions to the classification manual to reflect social and theoretical advancements. There have been three modifications in the representation of adaptive behavior in the definition of intellectual disability in AAIDD classification manuals over time. Prior to 1973, many diagnosticians abused the IQ score ceiling and failed to include adaptive behavior assessment in the labeling of intellectual disability. This reliability on IQ as the sole instrument for

diagnosis lead to an overabundance of underprivileged children and adults being diagnosed with intellectual disability due to the cultural bias of intelligence tests. In an effort to ameliorate the situation, AAIDD changed the definition of intellectual disability in 1973 to "subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period" (Grossman, 1973, p. 5). The second amendment came in 1992, when the term *adaptive skills* replaced *adaptive behavior*. Subsequently, deficits in global adaptive behavior were replaced by deficits in two out of ten skill areas (i.e. communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure and work) derived from the *Syracuse Community Referenced Curriculum Guide* (Switzky & Greenspan, 2006; Ford et al. 1989). While paved with good intentions, criticism quickly ensued and the ten adaptive skill areas were further refined using scientific inquiry. Consequently, with the development of standardized measures in 2002, the AAIDD introduced the tripartite definition of adaptive behavior, "adaptive behavior was to be expressed in conceptual, social, and practical adaptive skills" (Switzky & Greenspan, 2006, p. 25). These skill areas were based on studies of the theoretical structure of adaptive behavior. Regardless of the author, all existing definitions agree that adaptive behavior is developmental in nature, measured in terms of typical behavior, and defined by social and cultural standards and expectations.

Prior to 1986, the majority of studies on adaptive behavior focused on assessment instruments as opposed to theoretical structure (Harrison, 1987). Although there was some agreement on the definition, Greenspan (2003) noted the elusive nature of the underlying structure of the construct was a result of the inclusion of adaptive behavior in the Herber (1959) classification of intellectual disability and subsequent assessment development without a constitutive definition (as cited in Harries, 2008). Coulter and Morrow (1978) expressed the concern that the construct was so broad that

it could include any aspect of human behavior (as cited in Spreat, 1999). Adaptive behavior has been explored by researchers from various disciplines and as theory in adaptive behavior has evolved, so have operational definitions and assessment protocols. Historically, the leading methodology for examining the operational construct of adaptive behavior has been factor analysis. However, factor analytic research has led to differing conclusions about the dimensions of adaptive behavior for people with intellectual disability, mainly due to the methodological issues impacting the factor structure studies (i.e. study participant characteristics, factor analytic methods utilized, adaptive behavior scales investigated and terminology) (Harries, 2008; McGrew & Bruininks; 1989; Meyers, Nihira & Zetlin, 1979; Widaman, Borthwick-Duffy, & Little, 1991; Widaman & McGrew, 1996). A recent review of the factor analytic research since 1979 conducted by Thompson, McGrew and Bruininks (1999) concluded that: (a) no one assessment entirely measures the diverse range of adaptive and maladaptive behavior domains; (b) the breadth of variables (e.g. range of topics covered within the scale) contributes significantly to the identification of latent variables and consequently suggests the investigation of hierarchical adaptive and maladaptive models; (c) adaptive behavior is a multidimensional construct consisting of five domains (personal independence, responsibility, cognitive/academic, vocational/community, and physical/developmental); and (d) maladaptive behavior can be categorized into two domains of problem behavior (personal and social). Although the review of the factor studies have suggested multiple domains, Schalock et al., (2010) concluded that taken as a whole all studies point toward a multidimensional construct with three higher order domains of skills: a) social skills (i.e. interpersonal skills, social responsibility, self-esteem, gullibility, social problem solving, wariness, follows rules/obeys laws and avoids being victimized), b), practical skills (i.e. activities of daily living, occupational skills, money skills, safety, health care skills, travel/transportation skills, schedules/routines skills and telephone skills), and c) conceptual

skills (i.e. language, reading, mathematics, money, time, and number concepts). To reconcile the discrepancies between adaptive and maladaptive behavior Widaman and McGrew (1996) nested the two factors within the construct of personal competence. Using this distinction, they suggested that measures of adaptive behavior were representative of the typical performance that one exhibits when responding to his or her environment. This paradigm shift moved "the focus away from adaptive behavior as an independent construct entity or 'thing' inside a person, to a person's typical performance or achievement across the major domains of personal competence" (Thompson, McGrew, & Bruininks, 1999, p. 33). This shift in perspective ushered in the development of new measures to identify the expression of adaptive behavior in people with intellectual disability.

Measurement of adaptive behavior.

Over 200 measures of adaptive behavior have been identified for people with intellectual and developmental disabilities (Schalock & Braddock, 1999). The diversity in the domains measured range, however, in depth of domain assessment, scope of eligible subjects, and scale content (Spreat, 1999). Additionally, the purpose for each measurement falls in to one or more different categories: a) diagnostic, b) planning supports or training plans, c) identifying strengths and weaknesses, d) research, and e) documenting progress. In an examination of northeastern school districts, Madaus, Rinaldi, Bigaj, and Chafouleas (2009) identified six adaptive behavior assessment options for special education directors to choose from when making district decisions about instrument adoption for children with intellectual disabilities. The top ranked adaptive behavior measures adopted by school districts were: (1) *Vineland Adaptive Behavior Scales – 2nd edition* (Sparrow, Balla, & Cicchetti, 2005)*;* (2) *Adaptive Behavior Inventory* (Brown & Leigh, 1986)*;* and (3) *AAMR Adaptive Behavior Scale-School: 2nd edition* (Lambert, Nihira, & Leland, 1993). Critics of these measures have suggested that they are outdated because they do not incorporate the evolution of the construct of

adaptive behavior identified through empirical studies. Of the three measures adopted by school districts, only two of the measures, the Vineland Adaptive Behavior Scales and the AAMR Adaptive Behavior Scale - School Version are based on a 3-factor model of adaptive behavior (i.e. conceptual, social, and practical skills), have strong psychometric properties, and have been standardized on people with intellectual disability (Arias, Verdugo, Navas & Gómez, 2013; Borthwick-Duffy, 2007). Critics also postulate that these measures lack cultural sensitivity, fail to provide a cut-off point for determining significant limitations in adaptive behavior for diagnostic purposes, fail to address environmental factors that influence the expression of adaptive skills, and fail to identify some aspects of adaptive behavior such as naiveté, gullibility, and technology-related skills that influence human functioning (Tassé & Craig 1999; Tassé et al., 2008). The *Diagnostic Adaptive Behavior Scale (*DABS) (2008) has been constructed to specifically address the concerns outlined above, and is currently under investigation to determine its reliability and validity. One of the ensuing research questions outlined within this research proposal regards the construct validity of this instrument.

Emergence of the Support Needs Construct

The *medical model* postulates that intellectual disability is a disorder of the brain or central nervous system resulting from a health condition, trauma, or disease that limits human functioning and should respond to pharmacological or physical treatment. Veatch (1973) outlined four characteristics of the medical model. "A deviancy will be placed within the medical model if it is seen as a) non-voluntary, and b) organic, if c) the class of relevant, technically-competent experts is physicians, and if d) it falls below some socially defined minimal standard of acceptability" (p. 64). On the other hand the *impaired model* as defined by Osmond (1970) is analogous to the current deficit-based approach in which some intrinsic characteristic makes the individual different from others. The two models differ in three ways: a) in the medical model, treatment is anticipated while

in the impaired model there is no perceived treatment, just potential rehabilitation; b) in the medical model, change in the affliction is likely while in the impaired model the individual's condition is seen as permanent; and c) in the medical model the person is perceived as sick and his/her rights are different from their typical rights, but in the impaired model the person has limited rights but are expected to act typically. The impaired model perpetuated the eugenics movement (1880-1925) that has historically marginalized and excluded people with disabilities (Pfeiffer, 1994).

The rational for supports as a means for changing human functioning emerged as early as the 1980's (Buntinx & Schalock, 2010; Claes, Van Hove, Van Loon, Vandevelde, & Schalock, 2009). The *supports model* as defined for people with intellectual disability, "is based on an ecological approach to understanding behavior that depends on evaluating the discrepancy between a person's capabilities and skills and the adaptive skills and competencies required to function in an environment" (Luckasson et al. 2002, p. 147). AAIDD's theoretical model of intellectual disability is based on the person-environment interaction and the enhancement of human functioning through the identification and administration of individualized supports (Schalock, et al., 2007). This perspective is supported by the World Health Organization (WHO) (2001) *International Classification of Functioning, Disability, and Health (ICF)* that recognizes a person's level of participation can be facilitated or restricted by environmental influences (Jones, 2001; Riches, 2003). Thus, "disability is no longer viewed as fixed or dichotomized, rather it is fluid, continuous, and changing, depending on the person's functional limitations and supports available within the person's environment" (Riches, 2003, p. 325). In the AAIDD model however, there is a clear distinction between the construct of supports and support needs. The definitions are as follows:

> "Supports are resources and strategies that aim to promote the development, education, interests, and personal well-being of a person and that enhance individual functioning" (Luckasson et al., 2002, p. 151).
>
> "Support needs is a psychological construct referring to the pattern and intensity of supports necessary for a person to participate in activities linked with normative human functioning" (Thompson et al, 2009, p. 135).

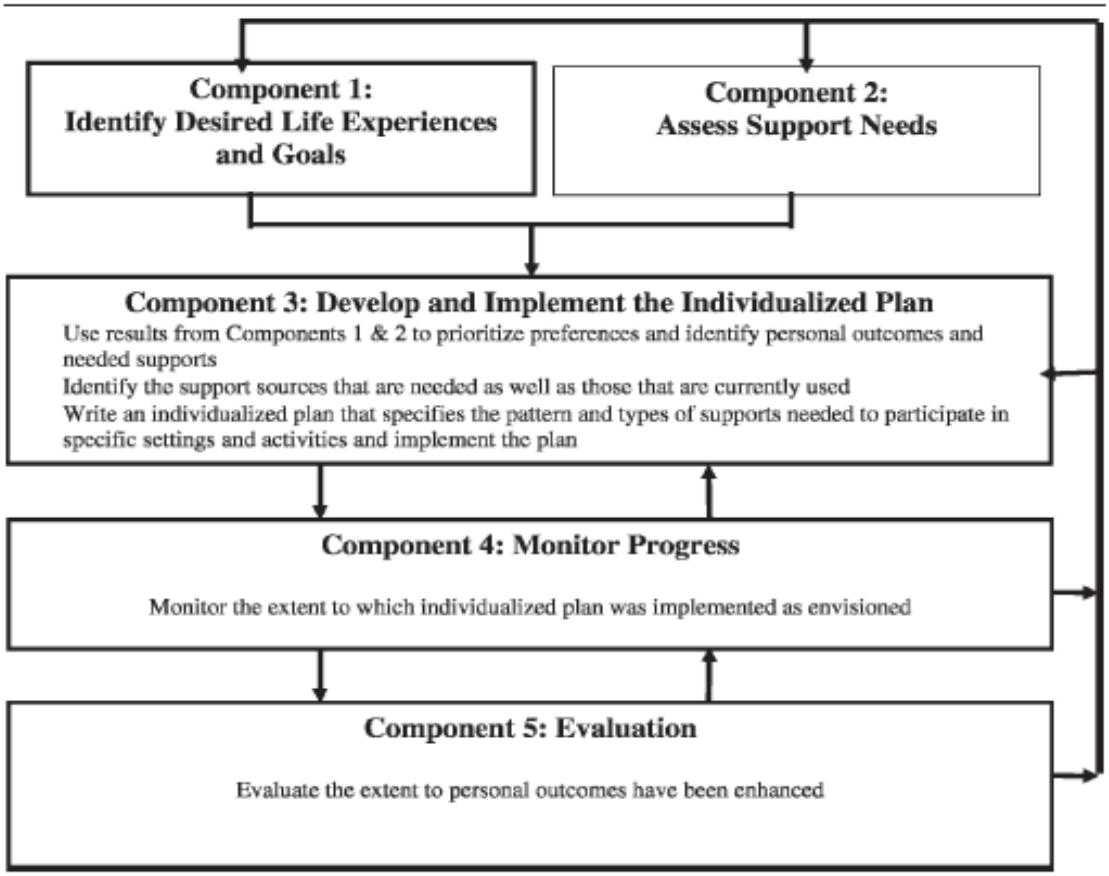
Thus, support needs represent a personal characteristic that endures over time while supports are resources and strategies that change as a function of the environment in which the person functions. Support needs can fall into one of four categories: (a) objective need, (b) felt need, (c) expressed need or demand, or (d) comparative need. Felt need and expressed need are internally driven while objective and comparative needs represent external interpretations of need. These needs can be experienced in isolation or simultaneously within a single environment. The complexity of these support needs has transformed the role of service professionals and the design of individualized service plans for people with intellectual disability (Thompson et al., 2004).

To address individual support needs and improve outcomes for people with intellectual disability, professionals must examine the discrepancy between the person's competencies and the environment and use that information along with individual preferences to conceptualize systems of supports. A four-component approach for assessing, planning, monitoring, and evaluating individualized supports has been outlined by Thompson and colleagues (2002). Figure 1 illustrates this approach. Component 2 of the process requires the assessment of support needs. Support needs can be identified through a series of person-centered planning tools, and AAIDD has developed the *Supports Intensity Scale (SIS)* to specifically address the theoretical construct of support needs by identifying the pattern of supports that would allow an individual to function successfully in his or

her environment. The instrument identifies activities within seven domains: (a) home living, (b) community living, (c) lifelong learning, (d) employment, (e) health and safety, (f) social, and (g) protection and advocacy. The measure then rates the activities according to three distinct measures of support: (a) frequency, (b) daily support time, and

Figure 1.

Process for Assessing, Planning, Monitoring, and Evaluating Individualized Supports (Thompson et al., 2002).



(c) type of support. The instrument also incorporates the underlying assumption that a person's support needs are globally influenced by exceptional medical or behavioral challenges; these challenges are ranked on a 0 to 2 scale of support needs (Thompson et al., 2004).

A series of empirical studies have been performed to evaluate the reliability and validity of an adult version of the SIS. Results indicate strong internal consistency, test-retest reliability, inter-scorer reliability, inter-interviewer reliability, and inter-respondent reliability (Buntinx et al., 2004; Claes, VanHove, vanLoon, Vandervelde & Schalock, 2009; Lamoureux-Herbert & Morin, 2009;

Thompson, Tassé, & McLaughlin, 2008). Others have replicated the psychometric properties in additional translations of the SIS (Buntinx, 2006, 2008; Morin & Cobigo, 2008; Verdugo, Arias, Ibanéz, & Gómez, 2006). Criterion-related validity and construct validity studies have also been performed and resulted in conclusions that support the validity of the measure (Guscia, Harries, Kirby, Nettelbeck & Tapling, 2006; Smitt, Sabbe, & Prinzie, 2011; Weiss, Lunsky, Tassé & Durbin, 2009). A six factor structure has been confirmed across gender, age, and disability complexity. The factor structure identified by Kuppens et al. (2010) with a sample of 14,862 individuals with intellectual disability reflects those domains originally proposed as representative of the multidimensional construct (home living, community living, life-long learning, employment, health and safety, and social activities). The SIS has been used nationally and internationally to develop, evaluate, and monitor individual service plans; determine resource allocation; and evaluate organizational programs (Agosta et al., 2009; Bossaert et al., 2009; Smith & Fortune, 2008; Wehmeyer, Chapman, Little, Thompson, Schalock, & Tassé, 2009). The SIS has been translated into 13 languages including French, Italian, Catalan, complex Chinese, Spanish, Hebrew, and Dutch (Kuppens, Bossaert, Buntinx, Molleman, Van den Abbeele, & Maes, 2010). Since the 1980s, the supports construct has impacted the field in three distinct areas: 1) individual support needs planning for education and habilitation, b) resource allocation as a measure of the intensity of type of supports needed, and c) best-practices in person-centered planning for community inclusion (Buntinx & Schalock, 2010). Due to the success of the adult version of the SIS, AAIDD received numerous requests for a version specifically tailored to children with intellectual disability and thus initiated the development of the *Supports Intensity Scale for Children (Field Test Version 1.1)*, designed to measure the support needs of children with intellectual disability from ages 5 to 16. The scale is

currently under evaluation for reliability and validity. The proposed study will add to these studies by examining the construct validity of the measurement.

Relationship between Adaptive Behavior and Support Needs

The paradigm shift from a deficit-based approach to the diagnosis and individualized planning of services for people with intellectual disability to a support needs-based approach has led to questions concerning the distinct nature of the construct of support needs. Several studies have attempted to answer the question: Are the constructs of support needs and adaptive behavior the same, related, or distinct?

In the pilot test of the Supports Intensity Scale (SIS), Thompson et al., (2002) compared scores on the SIS and the *Inventory for Client and Agency Planning* (ICAP) a measure of adaptive behavior, (Bruininks, Hill, Weatherman, & Woodcock, 1986) for 57 people. Results were inconclusive based on the examination of intercorrelations suggesting further examination to identify and clarify the relationship between the two constructs. However, in the 2004 *Supports Intensity Scale User's Manual*, Thompson et al. stated, "the constructs of personal competence and support needs are related but are not the same thing" (2002, p. 9). Thompson et al. examined the construct validity of the SIS by identifying the correlation between the SIS subscales and the subscales on the ICAP, and the *Vineland Adaptive Behavior Scales* (VABS) (Sparrow, Balla, & Cicchetti, 1984) the leading adaptive behavior scale. Correlations between the SIS subdomain scores and the ICAP service score resulted in correlation coefficients as follows: Home Living -0.68, Community Living -0.31, Lifelong Learning -0.36, Employment -0.23, Health and Safety -0.48, Social -0.41, and Total Score -0.49. Correlations of scores on the SIS and VABS for 178 people resulted in correlation coefficients of: Home Living -0.61,Community Living -0.57, Lifelong Learning -0.45, Employment -0.48, Health and Safety -0.52, Social -0.49, and Total Score -0.59. Correlations in the moderate to

very high range are between 0.4 and 0.9 thus, the data supported the notion that the SIS was measuring a construct other than adaptive behavior.

Thompson et al. (2004) also examined the disparate frameworks defining the constructs. First, they indicated that support needs are influenced by five separate domains of which adaptive behavior is only one. The other four domains that influence a person's intensity, frequency, and type of supports are: a) exceptional medical needs, b) exceptional behavioral needs, c) the number and complexity of settings, and d) the number and complexity of life activities. Next, the authors described the difference between the tools used to measure adaptive behavior and support needs in terms of the constructs measured, focus of assessment(s), and the use of an assessment, item stems, item responses, and additional items. Most notable of these distinctions was the difference between the item stems. Behavior scales are used to diagnose intellectual disability and identify subsequent educational and training goals. On the other hand, the SIS is used to determine support needs necessary to enhance functioning in various activities (Thompson et al., 2010). In terms of item stems, adaptive behavior scales examine the skills necessary to successfully function in a variety of activities, while the SIS examines the activities in daily life. Despite these proclamations, others ventured to identify the relationship between the constructs of support needs and adaptive behavior.

In Australia several studies examining the relationship between adaptive behavior and support needs have been performed. Riches (2003) examined the support needs of 116 individuals with intellectual disabilities receiving residential care. Riches consulted with stakeholders and integrated the AAIDD (1992) classification of supports to develop a new instrument *Supports: Classification and Assessment of Needs (SCAN).* As a means for validating the instrument, scores on the SCAN were compared to scores on the ICAP for 17 participants. In the study, communication, basic physical care needs and adaptive behavior were predictors of support hours (within a 24 hour period) on the

SCAN, however, with such a small sample it is difficult to glean any concrete conclusions. When Harries, Guscia, Kirby, Nettelbeck, and Taplin (2005) examined the relationship of the two constructs by comparing scores on a pre-publication of the SIS subscales with scores on the adaptive behavior scales of the ICAP and the *Adaptive Behavior Scale – Residential and Community* (ABS-RC:2) (Nihira, Leland, & Lambert, 1993). Correlation coefficients between the three ABS-RC:2 factor scores thought to represent the dimensions of adaptive behavior construct and the SIS ranged from -0.63 to -0.92. Correlation coefficients between the SIS and the ICAP Service Scores ranged from -0.64 to -0.94. The authors concluded the results suggested a common underlying construct between adaptive behavior and support needs. Harries et al. (2008) further examined the constructs through factor analysis and found based on scree plot and principal component analysis that a single factor accounted for 75.8% of the variance, suggesting a common factor underlies the measurement of the two constructs. Their conclusions also mirrored that of Thompson et al. (2002), suggesting further investigation into the relationship between the two constructs. In 2006, Guscia, Harries, Kirby, Nettelbeck & Taplin examined the validity of the *Service Need Assessment Profile (SNAP)* an instrument that, like the SIS, identifies the frequency, type, and duration of staff support for various domains. Unlike the SIS, however, the SNAP was developed to measure the support needs of individuals with various categories of disability. Scores on the SIS and the ICAP were collected for the 114 participants with disability in this study for comparison. The results were reported separately for the 83 participants with ID. The correlation between the SIS total score and SNAP was 0.78 ($p =< 0.1$),between the ICAP and SNAP 0.75 ($p =< 0.1$) , and between the SIS and ICAP 0.87 ($p =< 0.1$). They concluded that "the high correlations between the three instruments also support the notion that adaptive behavior (as measured by ICAP) and support (as measured by SNAP and SIS) are measuring a closely related construct (p. 154).

A fifth study, was performed by Wehmeyer and colleagues in 2009, and examined the constructs of personal competence and support needs using the SIS and the *Developmental Disability Profile (DDP)* (Brown, Hanley, Nemeth, Epple, Bird, & Bontempo, 1986). The DDP gathers information on three domains: Adaptive, Maladaptive, and Medical/Health, which are comparable to adaptive behavior scales. A new indicator was created called the sum DDP score that combined all three domains to better compare the two instruments. The correlation between the SIS and DDP adaptive behavior subscale score was .82. Regression analyses were used to examine relationship between the total SIS score and the sum DDP scores and found that the total SIS score accounted for nearly 50% ($R^2 = 0.49$) of the variance of the sum DDP score. The authors interpreted this to mean that the unaccounted variance could "logically be attributed to the differences between measuring support needs and measuring personal competence" (p. 9). These results echo those of Thompson et al. (2004) indicating the two constructs as related yet distinct.

Finally researchers out of Ontario, Canada examined the relationship between the two constructs by comparing the results on the SIS and the *Scales of Independent Behavior-Revised (SIB-R)* (Bruininks, Woodcock, Weatherman & Hill, 1996) for 40 individuals with ID and dual diagnosis (Brown, Ouellette-Kuntz, Bielska & Elliott, 2009). They found that for all participants the SIS scores were significantly correlated with the *broad independence W score* (i.e. adaptive behavior as measured by motor, social interaction and communication, personal living and community living skills) They also found a strong correlation between the SIS total score and SIB-R *support score* that is a sum of the maladaptive index and broad independence W score. These results support Harries et al. (2005) and Guscia et al. (2006) indicating the two constructs of adaptive behavior and support needs are similar. The discrepancy between the six studies, warrant further examination of the relationship between the constructs. Both adaptive behavior and support needs are in their infancy in

terms of theory development and the outcomes will have a dramatic impact on AAIDD's multidimensional model of human functioning underlying the construct of intellectual disability.

Construct Validity

Construct validity refers to "the extent to which a test reflects constructs presumed to underlie the test performance and also the extent to which it is based on theories regarding these constructs" (Ary, 1972, p. 197). Through the investigation of construct validity concerning psychological theories, one examines the qualities and characteristics presumed to reflect higher order traits that are unobservable. Strauss & Smith (2009) put it succinctly when they stated "construct validation concerns the simultaneous process of measure and theory validation" (p. 1). Cronbach and Meehl (1955) introduced the iterative method of theory construction, leading to more refined, complete theories through investigation of construct validity.

Modern construct validity theory makes a distinction between construct representation and nomothetic span. Construct representation refers to "the psychological processes that lead to a given response on a trial or to the pattern of response across conditions in an experiment" (Strauss & Smith, 2009, p. 11). Nomothetic span, on the other hand, refers to the convergent and discriminate validity of a construct. In the proposed study I am particularly concerned with the nomothetic span of the constructs of adaptive behavior and support needs. Structural equation modeling (SEM) is an appropriate statistical method for evaluating nomothetic spans within constructs. Consequently, the primary analytical method utilized in the proposed study is structural equation modeling.

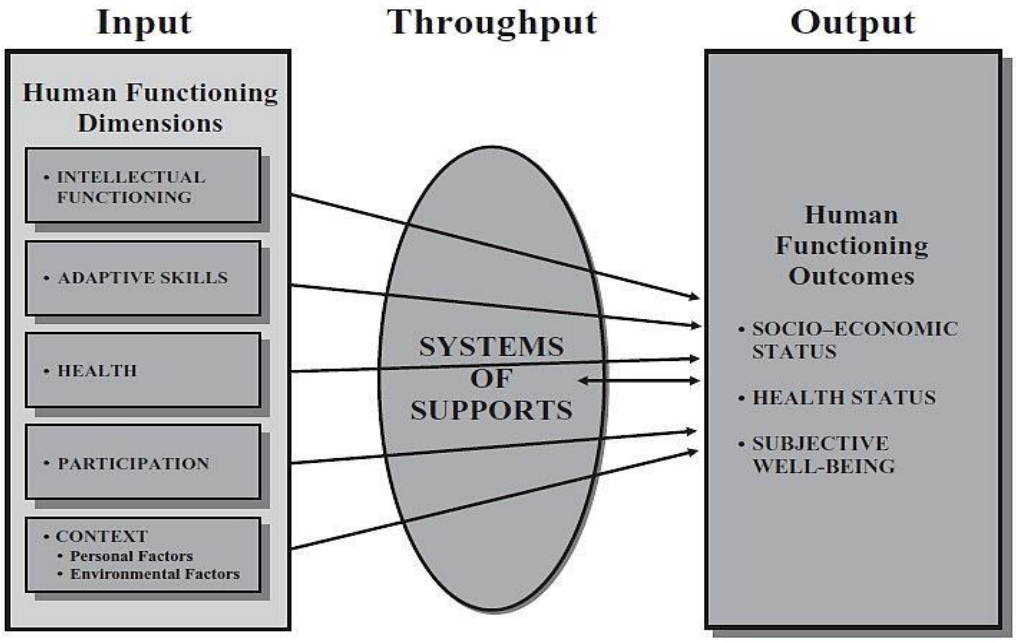
Research Questions

Although both measures outlined above, and their operational constructs, examine the expression of typical performance, the two theoretical constructs of adaptive behavior and support needs are not analogous, nor are they utilized for the same end. In 2012, Luckasson & Schalock

proposed advancements to the AAIDD multidimensional model of human functioning used to illustrate the relationship amongst and between different influencing factors on a person's ability to function successfully in life activities (see Figure 2) (Luckasson et al., 2002)

Figure 2

Multidimensional Model of Human Functioning (Luckasson et al., 2002)



As depicted in the model a person's support needs are reflected in limitations in dimensions human functioning as a result of either personal capacity or the context in which the person is functioning" (Thompson et al. 2009, p. 136). Thus what sets the model apart from others, is that through addressing the mismatch between human functioning and the environment, outcomes for people with intellectual disability can be improved.

The theoretical constructs of adaptive behavior and support needs are in their infancy in terms of theoretical development. There have been limited yet discrepant studies examining the theoretical

constructs and their correlation to one another. It is postulated that the two constructs examined represent related but distinct theoretical constructs. There has been a call for researchers to clarify the structure and nature of the intercorrelations among the two constructs (Harries, Guscia, Kirby, Nettelbeck & Taplin, 2005; Thompson et al., 2009; Wehmeyer et. al., 2009). The proposed study seeks to confirm the hypothesis that adaptive behavior and support needs represent two distinct but related theoretical constructs. Based upon a thorough literature review and through the application of modern statistical methods the following research questions and hypotheses will be investigated (the research questions are presented below, along with null hypotheses (H_0) and alternative hypotheses (H_a)):

1. Does the *Diagnostic Adaptive Behavior Scale (DABS)* measure the construct of adaptive behavior as outlined by AAIDD as "the collection of conceptual, social, and practical skills that have been learned by people in order to function in their everyday lives" (Schalock et al., 2010, p. 43) for children with intellectual disability?

   H_0: The DABS will not conform to the factor structure outlined by Luckasson.

   H_a: The DABS will conform to the three factor structure with loadings on conceptual, social and practical skills.

2. Does the *Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children)* measure the construct of support needs defined by AAIDD as "a psychological construct referring to the pattern and intensity of supports necessary for a person to participate in activities linked to normative human functioning" (Thompson et al., 2009) for children with intellectual disability?

   H_0: The Supports Intensity Scale for Children will not conform to the seven factor structure defined in the manual by Thompson et al., (2009)

H_a: The Supports Intensity Scale for Children will conform to the outlined seven domains representative of home living activities, community and neighborhood activities, school participation activities, school learning activities, health and safety activities, social activities and advocacy activities.

3. Do the *DABS* and the *SIS for Children* measure two distinct underlying constructs?

   H_0: The DABS and the SIS for Children will not be highly correlated

   H_a: The DABS and the SIS for Children will be highly correlated.

4. What is the unique contribution of adaptive behavior to the measurement of support needs in children with intellectual disability?

   H_0: There will be no unique contribution of adaptive behavior to the measurement of support needs for children with intellectual disability

   H_a: There will be a unique contribution of adaptive behavior to the measurement of support needs for children with intellectual disability.

Chapter 2: Validating the Theoretical Structure of Adaptive Behavior and Support Needs Using AAIDD's Diagnostic Adaptive Behavior Scale and the Children's Version of the Supports Intensity Scale (Study 1)

Introduction

In 2013 the American Psychiatric Association (APA) published the Fifth Edition of their touchstone *Diagnostic and Statistical Manual of Mental Disorders (DSM-V).* The definitional criteria for intellectual disability (ID) outlined within the manual is harmonious with other authoritative texts such as the World Health Organizations' *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CF),* and future releases *(ICD-10-CF)* and *(ICD-11)* that represent the official coding system for mental disorders used in the United States. The evolutionary changes in the diagnostic criteria of intellectual disability within the manual were based on durable progress in such scientific research areas as genetics, epidemiology, psychology, education, and neuroscience. The DSM-V definition and nomenclature mirrors the American Association on Intellectual and Developmental Disabilities' (AAIDD) 2010 operational definition of intellectual disability outlined in the 11th edition of the *Intellectual Disability Definition, Classification, and Systems of Support Manual*. "Intellectual disability is a disability characterized by significant limitations in both intellectual functioning and adaptive behavior as expressed in conceptual, social and practical adaptive skills. This disability originates before the age of 18" (Schalock et al., 2010, p. 1). To fulfill the first two criteria outlined in the definition, a person must have an IQ score

> "…that is two standard deviations below the mean, considering the standard error of measurement for the specific assessment instruments used and the instruments' strengths and limitations…[and demonstrate performance] …on a standardized measure of adaptive behavior that is normed on the general population including people with and without ID that is

approximately two standard deviations below the mean of either (a) one of the following three types of adaptive behavior: conceptual, social, and practical or (b) an overall score on a standardized measure of conceptual, social, and practical skills" (Schalock et al., 2010, p. 27).

As a result of the above diagnosis and classification criteria, intellectual disability is universally diagnosed by limitations in intelligence and adaptive behavior that occur during the developmental period and understood in the context of supports and support needs (Schalock et al., 2010). Intelligence is the longest standing component of diagnosis, but adaptive behavior and support needs have assumed greater importance over time. Both constructs require the use of quality measurements to allow for systemic and objective assessment of observed behaviors in order to interpret, diagnose, and provide systems of supports for people with intellectual disability.

Measurement of adaptive behavior.

As is true with most psychological constructs, measures of adaptive behavior were developed before the construct was adequately defined (Edwards, 2010). Between the late 70's and early 90's factor analytic studies provided two competing arguments for the construct of adaptive behavior, one examining the construct as unidimensional (Arndt, 1981; Bruininks, McGrew, & Maruyama, 1988; Milsap, Thackery, & Cook, 1987) and the other as a multidimensional construct (Nihira, 1978; Silverman, Silver, Lubin, & Sersen, 1983; Widaman, Borthwick-Duffy, & Little, 1991). Empirical evidence has overwhelmingly supported the multidimensionality perspective (Thompson, McGrew, & Bruininks, 1999) which examines adaptive behavior as a multifactor construct. The tripartite model of adaptive behavior emerged from several factor analytic studies reflecting the construct as a "collection of conceptual, social, and practical skills that have been learned and are performed by people in their everyday lives" (Schalock et al., 2010, p. 43) (Harrison & Oakland, 2003; McGrew, Bruininks, & Johnson, 1996; Thompson, McGrew, & Bruininks, 1999).

Currently there are over 200 adaptive behavior scales but only four are based on the tripartite model of adaptive behavior outlined by Schalock et al. (2010), have evidence of reliability and validity, and are normed on the general public including people with and without intellectual disability: (a) *the Vineland Adaptive Behavior Scales, Second Edition (VABS–II)* (Sparrow, Cicchetti, & Balla, 2005); (b) *the Adaptive Behavior Assessment System – II (ABAS-II)* (Harrison & Oakland, 2003); (c) *the Scales of Independent Behavior – Revised* (Bruininks, Woodcock, Weatherman, & Hill, 1996); and (d) the *Adaptive Behavior Scale - School Version* (Lambert, Nihira, & Leland, 1993) (Arias, Verdugo, Navas, & Gómez, 2013; Schalock et al., 2010; Tassé et al., 2012).

The Vineland Adaptive Behavior Scales Second Edition (VABS-II) examines a child's adaptive behavior in the domains of communication, socialization, daily living skills, and motor skills and produces an overall adaptive behavior composite score. The measure yields a standard score (M = 100, SD = 15) and is based on comparisons of children with and without disabilities. The VABS-II measures children from birth to 18 years old and is the most widely used due to its maladaptive behavior scale that examines internalizing, externalizing, and other behaviors that interfere with daily functioning. It is administered to a parent or caregiver through a semi-structured interview format. Open-ended questions gather additional information to supplement responses (Mirenda et al., 2010). It has been shown to demonstrate adequate reliability and validity (Sparrow, Cicchetti, & Balla, 2005). The measure has been used to assess adaptive functioning in a wide range of populations including children with autism spectrum disorder, hearing loss, Fragile X Syndrome, and Prader-Willi Syndrome (Basuta et al., 2011; Bat-Chava et al., 2005; Dimitropoulos, Ho, & Feldman, 2013; Mirenda et al., 2010).

The Adaptive Behavior Assessment System – II (ABAS-II) (Harrison & Oakland, 2003) examines adaptive behavior in three domains: conceptual, social, and practical skills in people birth

to 89 years old. Nine subscales fall into the three domains: the conceptual domain is comprised of communication, functional academics, and self-direction scales; the social domain is comprised of leisure and social skills scales; and the practical domain contains the community use, home living, health and safety, and self-care skill scales. A General Adaptive Composite (GAC) score is calculated by summing the scores of the subscales and then converting them into a norm-referenced standard score. The ABAS-II instrument is broken into five forms based on the type of respondent (e.g. parent/primary caregiver or teachers/daycare provider) and age of the individual being assessed. There are two forms for children ages zero to five (parent/primary caregiver and teacher/daycare provider), two forms for children ages five to twenty-one (parent and teacher), and finally a single form for adults ages 16 to 89. The instrument was standardized on a sample of 7,370 participants. Reliability coefficients for the different forms were near, at or exceeded .90. Interrater reliability estimates were lower but generally exceeded .80, and cross-informant coefficients generally exceeded .70. Confirmatory factor analysis confirmed the tripartite adaptive behavior model factor structure represented in the instrument. The authors noted that one concern of the assessment is the different representation of adaptive skills between genders. Wei, Oakland, and Algina (2008), however, confirmed the factor structure was similar for males and females.

The Scales of Independent Behavior – Revised full scale (SIB-R) is a 259-item written questionnaire that can be completed by a parent or caregiver or administered in an interview format to assess adaptive and problem behaviors in children and adults ages 3 months to 90 years (Bruininks, Woodcock, Weatherman, & Hill, 1996). The SIB-R measures fourteen areas of adaptive behavior and eight areas of maladaptive behavior. The fourteen areas of adaptive behavior are clustered into four domains: (a) motor skills, (b) social interaction and communication skills, (c) personal living skills, and (d) community living skills and together produce the Broad Independence W Score. The eight-

item SIB-R evaluates broad maladaptive behavior indices (internalized, externalized, and asocial) and culminates in a composite score (General Maladaptive Index - GMI). A final Support Score (infrequent to pervasive) is produced by combining the adaptive and maladaptive behavior scores. There are three forms: the full scale, the short form, and the early development form for children under the age of eight. The SIB-R Short Form has 40-items used to evaluate level of functioning. It is important to note that the SIB-R evaluates a person's *capacity* to carry out a given task rather than *actual performance*, thus assessing skills needed to function *independently* in age appropriate settings. The SIB-R also appears to contain more narrowly defined tasks as compared to other measures of adaptive behavior (Maenner, Smith, Hong, Makuch, Greenberg, & Mailick, 2013). The SIB-R manual reports good to excellent psychometric properties. Convergent validity was supported between the SIB-R independence score and the VABS-II adaptive behavior composite scores (Middleton, Keene, Brown, 1990).

Revised from the original 1975 AAMD *Adaptive Behavior Scales, Public School Version* and subsequent 1981 *Adaptive Behavior Scale, School Edition*, the AAIDD Adaptive Behavior Scale – School: Second Edition (ABS-S:2) is a two-part assessment of adaptive behavior in children ages three to twenty-one. The purpose of the instrument is to identify possible intellectual disability, emotional disturbance, or other learning disabilities through the assessment of adaptive behavior skills. Part one examines nine domains: independent functioning, physical development, economic activity, language development, numbers and time, prevocational/vocational activity, self-direction, responsibility, and socialization. Part two examines seven domains of maladaptive behavior: social behavior, conformity, trustworthiness, stereotyped and hyperactive behavior, self-abusive behavior, social engagement, and disturbing interpersonal behavior. The measure yields a standard score (M = 100, SD = 15) and percentiles. The measurement was normed on over 2,000 students with a

developmental disability and 1,000 students without a disability. Internal consistency for the nine domains ranged from .82-.98., test-retest reliability ranged from .85 to .99 and interrater reliability ranged from .95-.99 (Nihira et al., 1993). Watkins, Ravert, & Crosby (2002), however, identified methodological flaws in the confirmatory factor analyses in the manual thus leaving the structural validity of the measure underdefined. The conclusion of their exploratory factor analysis suggested a two-factor model as opposed to the proposed five-factor model.

The *Diagnostic Adaptive Behavior Scale (DABS)*, set for official release in 2013, was developed by AAIDD to address issues with other popular adaptive behavior scales. Five current issues were addressed by this new instrument: (a) the need for a measure that addresses the diagnostic "cut-off" range for intellectual disability, (b) a measure representative of the current tripartite model of adaptive behavior, (c) a measure that expands on higher order social adaptation skills, (d) a measure that is culturally sensitive and appropriate, and (d) a measure that does not perpetuate the invalid assessment of maladaptive behavior.

The prevalence of intellectual disability is generally considered to be between one and two percent of the general population (Krahn & Fox, 2013). Maulik, Mascarenhas, Mathers, Dua, & Saxena (2011) completed a meta-analysis of studies in 52 countries and yielded a prevalence estimate of 10.37/1000. These estimates varied across income groups in the country, age group of the study population, and study design. In the examination of the prevalence of people with intellectual disability with limited support needs (e.g., mild level of impairment), the variability in prevalence expands "4 per 1000 to 20 times higher" (David et al., 2013, p. 2). These extremes in variability highlight the need for an instrument that will allow for the standardized and consistent assessment of intellectual disability across not only the U.S. but the world. The DABS has been specifically

designed to address the "cut-off" point for adaptive behavior skills demonstrated by a person with intellectual disability to assist with diagnosis (Bersani, 2008).

In 2002, the then *AAMR Diagnostic Manual of Mental Retardation* incorporated the tripartite model of adaptive behavior comprised of conceptual, practical, and social skills into the definition. The original purpose for incorporating the construct of adaptive behavior into the diagnostic criteria of intellectual disability in 1959 was to steer away from the overreliance on faulty assessments of academic intelligence or IQ (Greenspan, 2006b). Although strong empirical evidence supports the tripartite model, it continues to evolve and needs more empirical evidence that can be supported through the use and examination of the DABS (Schalock et al., 2010; Tassé et al., 2012).

Gullibility "is often identified as a cardinal feature of intellectual disability" (Snell et al., 2009, p. 226). This trait along with naiveté leads to increased rates of victimization, a major concern of most families who care for and love those with an intellectual disability. It is these characteristics that lead to overprotection by care providers and restricts one's dignity of risk to experience new environments and activities and prevents the development of self-determination skills. Credulity and gullibility in people with ID is also becoming more germane in light of the Atkins v. Virginia (2002) case in which the Supreme Court ruled that executing a person with ID violates the Eight Amendment of cruel and unusual punishment. Subsequent cases are examining the adaptive behavior assessment of accused individuals, and it is essential that a person's gullibility and naiveté be incorporated into that assessment. The DABS is the first assessment tool of its kind to specifically incorporate items that evaluate gullibility and naiveté as part of the social skills domain of adaptive behavior.

The *AAIDD's 2010 Manual on Intellectual Disability: Definition, Classification and Systems of Support* outlines ten key factors about adaptive behavior and its assessment that are relevant to a diagnosis of intellectual disability. Within one of the factors the manual's authors stated "the person's

strengths and limitations in adaptive skills should be documented within the context of community and cultural environments..." (Schalock et al., 2010, p. 45). Sociocultural factors play a significant role in the manifestation of adaptive behavior skills. Behavior that is considered the norm in one culture may be seen as inappropriate or maladaptive in another. Craig and Tassé (1999) examined the literature of cross-cultural adaptive behavior skills and identified significant differences in the values and beliefs that are learned and adopted by different cultures. They concluded that the use of culturally competent assessments will result in the determination of behaviors that are pervasive and chronic limitations in skill development versus behaviors that are merely culturally different. Intimately cognizant of the need for a culturally sensitive adaptive behavior instrument, the authors of the DABS have addressed cultural, geographic, linguistic sensitivity or bias by involving cross-cultural experts in the item development of the DABS. Thus the instrument purports to be culturally sensitive to African-Americans, Hispanic-Americans, Asian-Americans and Native-Americans (Tassé et al., 2008).

Finally, what sets the DABS apart from some of the more popular adaptive behavior scales is its treatment of problem behavior (referred to as maladaptive skills in common adaptive behavior scales). The incorporation of maladaptive skills in the assessment of adaptive behavior assessments continues to be controversial in light of evidence that it is conceptually different as identified through correlational analyses. Due to pure demand, many instruments like the SIB-R incorporate maladaptive behaviors as separate scale apart from adaptive skills. As noted in the 11th edition of the AAIDD Manual on Intellectual Disability, "there is general agreement that the presence of clinically significant levels of problem behavior found on adaptive behavior scales does not meet the criterion of significant limitations in adaptive functioning" (Schalock et al.,2010, p.49). Thus, the incorporation of maladaptive behaviors in scales of adaptive behavior serves to perpetuate the invalid

belief that problem behaviors are representative adaptive behaviors. The DABS does not incorporate items of maladaptive/problem behavior and instead focuses on adaptive behavior domains within the tripartite model.

To date, there have only been two outside evaluations of the pre-publication version of the DABS, both using the *Spanish Version of Diagnostic Adaptive Behavior Scale (DABS-S).* The DABS was translated using guidelines set forth by the International Test Commission in 2010 (Navas, Verdugo, Arias, & Gómez, 2010). The same authors sought to refine the pre-existing item pool of the DABS-S using Item Response Theory Models to establish a valid measure to determine the cut-off point for determining significant limitations in adaptive behavior in Spain. Using a sample of 338 people with and without a disability the researchers were able to parse the scale down to a set of 72-items evaluating adaptive behavior. In a later publication, Arias, Verdugo, Navas, & Gómez (2013) examined the factor structure of the 72-item DABS-S using confirmatory factor analysis. Parcels were used as indicators of the higher order latent construct of adaptive behavior. The second model they identified was representative of the tripartite model, with adaptive behavior consisting of three-factor solution providing good fit indices: *RMSEA* = .062, *SRMR* = .02, *CFI* = 1.00, and *TLI* = 1.00. It is the intent of this study to first examine the validity of the tripartite model of adaptive behavior reported within the DABS by the examination of the factor structure through confirmatory factor analysis, thus contributing to the literature and diagnosis of ID. A second purpose of this study is to examine the construct of support needs through the analysis of the *Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children).*

Measurement of support needs.

As early as the 1980's families, self-advocates, and professionals began systematically controlling the environment to improve adaptive behavior skills. The use of systems of support to

enhance interactions within a person's environment illuminated the social-ecological model of disability with the focus on reducing the mismatch between a person's adaptive skills and the demands of the environment (Luckasson & Schalock, 2012; Thompson et al, 2009; Wehmeyer et al., 2008). It is important to distinguish the difference between supports and support needs. Supports are "resources and strategies that aim to promote the development, education, interests, and personal well-being of a person and that enhance individual functioning." (Schalock et al., 2010, p. 105). More recently the understanding of supports has expanded to include "systems of supports," which incorporate the planning and implementation of individualized support strategies and resources across settings and provides a systemic improvement of human functioning (Luckasson & Schalock, 2012). Support needs, on the other hand, is "a psychological construct referring to the patterns and intensity of supports necessary for a person to participate in activities liked to normative human functioning" (Schalock et al., 2010, p. 105).

The construct of support needs can be further understood by examining four distinct needs categories: (a) normative or objective need, (b) felt need, (c) expressed need or demand, and (d) comparative need that make up global or overall support needs (Thompson et al., 2009). Support needs are reflective of the socio-environmental mismatch of competency and demands, thus the level and intensity of support needs can be a result of personal capacity or environmental opportunities or restrictions. Support needs is considered an enduring characteristic of people with intellectual disability and sets them apart from the general population because of the nature and extent of supports needed to effectively participate in the community. In order to evaluate the pattern and intensity of supports Thompson and colleagues (2004a) developed the *Supports Intensity Scale*.

The Supports Intensity Scale (SIS) is a multidimensional measure designed to assess the pattern and intensity of supports needed by a person over the age of sixteen to successfully participate

in seven domains of life activity: home living, community living, lifelong learning, employment, health and safety, social and protection, and advocacy. Forty-nine questions within the seven domains are rated on three measures of support need: frequency, daily support time, and type of support. The SIS also has separate medical and behavioral supports sections listing fifteen medical conditions and thirteen problem behaviors. "An underlying assumption is that certain medical conditions and challenging behaviors predict that a person will require increased levels of support, regardless of her or his relative intensity of support needs in other life domains (Thompson et al., 2004b, p. 8).

The SIS was developed through a multistage process involving a thorough literature review, the use of Q-sort methodology to identify quality items, and testing for validation and reliability. The SIS was normed on a sample of 1,306 people across 33 states in the U.S. An analysis of content validity, criterion-related validity, and construct validity were all performed (Buntinx et al., 2008; Thompson et al., 2004b; Weiss, Lunsky , Tassé, & Durbin, 2009). Test-retest reliability for the seven subscales were reported in the manual to range from .52 to .82. Interrater reliability for the subscales were reported to range from .47 to .92 (Thompson, Tassé, & McLaughlin, 2008).Tassé, & McLaughlin (2008), however, reported higher rates of interrater reliability. Interrespondent correlation coefficients ranged from .65 to .85 for subscales while inter-interviewer coefficients ranged from .77 to .92. The SIS has been has been adopted by 15 states and provinces and been translated into thirteen different languages including French, Italian, Catalan, Complex Chinese, Spanish, Hebrew, and Dutch (Van Loon, Claes, Vandevelde, Van Hove, & Schalock, 2010). Finally the SIS has demonstrated utility with people with mental illness (Jenaro, Cruz, Perez, Flores, & Vega, 2011; Tassé & Wehmeyer, 2010). With the success of the SIS there has been a need to develop a similar instrument to fill the void in the evaluation of support needs for children, as a result Thompson et al., 2010 began the development of a Supports Intensity Scale for Children.

The SIS-Children is currently in the final stages of standardization in the U.S. and Canada. The SIS-Children was modeled after the Supports Intensity Scale but is intended for children with intellectual disability ages five to sixteen. Van Loon, Claes, Vandervelde, Van Hove, & Schalock (2010) provide a subscale comparative analysis of the SIS-Children and the SIS. The SIS-Children is comprised of two sections: a support needs scale and a scale for exceptional medical and behavioral needs. The support needs scale includes 61 life activities broken down into seven domains: (a) home life activities, (b) community and neighborhood activities, (c) school participation activities, (d) school learning activities, (e) health and safety activities, (f) social activities, and (g) advocacy activities. Like the SIS, the life activities are rated on three measures of support need: type, frequency, and time. Given the measurements developmental stage it is essential to assist in the evaluation of its validity. Consequently in-lies the secondary purpose of this study which is to examine the construct validity of the SIS-Children.

To evaluate the construct validity of both the DABS and the SIS-Children we will utilize confirmatory factor analysis, a modeling approach used for studying latent constructs and their theoretical structure using observable proxies (Raykov & Marcoulides, 2006). The construct validity will be evaluated from a sample pool of 102 children with ID. Through these analyses we will specify and deem satisfactory the theoretical constructs and evaluate their relationship in Study 2.

Method

Participants.

Based upon initial estimates of statistical power, a total sample size (N) of 100 focus children was identified for assessment (Loehlin, 1998*)*. For our field test we collected data on 120 children to compensate for attrition and faulty data. For a child to be eligible for assessment, he/she had to: (a) be between the ages of 4 and 16, and (b) have a formal diagnosis of intellectual disability (termed mental

retardation in some areas). The former criterion reflects the more restrictive inclusionary criterion outlined between the two instruments. For the purposes of this study, intellectual disability is defined in accordance to the AAIDD 2010 definition:

> "[intellectual disability is] characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed by conceptual, social, and practical adaptive skills. This disability originates before the age of 18" (Schalock et al., 2010, p. 1).

Detailed demographic information was gathered on children and respondents to control for confounding variables in the analytical model (Spector, 1981). After examining the demographic information and affirming inclusionary criteria was met, a total sample of N=102 children were the focus of the study. Males comprised 74% (n = 75) of the sample population while females comprised 26% (n = 27). Children ranged in age from 5 to 16 (M = 11.5, SD = 2.92). The majority of children (88%, n = 90) were identified as White, 4% (n = 4) Asian, 4% (n = 4) Black or African American, 3% (n = 3) American Indian or Alaska Native, and 1% (n = 1) Hispanic or Latino. The children's' diagnosis and special education setting can be reviewed in Table 1.

Table 1

Demographic Characteristics of the Children of Focus (N = 102)

	n	**%**
Focus Children: Disability Category		
Mental Retardation/Intellectual Disability	67	66%
Developmental Disability	58	57%
Speech/Language Impairment	50	49%
Autism	50	49%
Learning Disability	44	43%
Physical Disability	32	31%
Focus Children School Placement		
General Education	14	14%
Special Education – Less than half day	21	21%
Special Education – Half day or more	63	62%
Other	4	4%

Two individuals, who knew the child of focus, acted as respondents on the instruments (i.e. participants). To be eligible as a respondent, the person had to have known the child under consideration for at least three months and had recent opportunities to observe the child in one or more settings. Respondents, could be educational professionals (e.g. teachers, paraprofessionals, therapists, etc.), adult family members, family friends, or direct support personnel. Our ideal configuration of participants included one parent and one teacher so as to incorporate the varied environments in which the child functioned. Table 2 describes both the primary and secondary respondent's relationship to the child of focus. Eighty –six percent of the primary respondents were female (n = 88) and 14% (n = 14) male.

Table 2

Relationship of Respondent to Child of Focus

	n	**%**
Respondent #1 Relation to Child		
Mother	81	79%
Father	12	12%
Grandparent	4	4%
Other	3	3%
Caregiver	2	2%
Respondent # 2 Relation to Child		
Mother	6	6%
Father	29	28%
Other	26	25%
Caregiver	13	13%
Grandparent	9	9%
Teacher	7	7%
Aunt/Uncle	5	5%
Peer/Friend	4	4%
Sibling	3	3%

Procedure

Sampling methods.

One hundred and two focus children recruited through the Kansas Department Social and Rehabilitation Services (Kansas SRS) (n = 65), the Missouri Department of Mental Health (n = 16), and the Paul V. Sherlock Center on Disabilities the Rhode Island College University Center on Excellence and Developmental Disabilities (n = 21) were participants in the study. Each

agency/center listed agreed to send out letters to those they served who according to their records met the inclusionary criteria for the project and requested the release of family contact information so that the project team could then contact them to discuss their potential participation. The method by which families were recruited to participate was identical, aside from who made the initial contact. In the state of Kansas, 240 families received an information letter about the project from Kansas SRS. This number represented 26.2% of those who received services under the MR/DD Home and Community Based Services (HCBS) Waiver that provides services and supports to people with intellectual disability or other related developmental disabilities that are eligible for institutional care but choose to live in the community. After the initial letter was sent, the project team utilized a stratified proportional sampling technique (Lohr, 1999) to identify the appropriate number of randomly selected participants from each of the 27 Community Developmental Disability Organizations (CDDO's) regional offices across Kansas. In the state Missouri, the Department of Mental Health directly solicited the support of the regional directors of developmental disability service to assist in the recruitment process. In the state of Missouri, eleven regional offices support a total of 32,620 people with a developmental disability and serve as the point of entry into the developmental disability system in the state (Schanzmeyer, 2013). Three of the eleven regional directors (in Rolla, Kirksville, and Joplin) responded to the request and worked with their direct service staff to identify eligible families for the project. These three regions serve 13% (Rolla (1,811), Kirksville (847), and Joplin (1,653)) of the Missouri DD population. Finally, the Paul V. Sherlock Center in RI utilized their UCEDD trainee program to train 23 graduate students on the administration of the instruments who then identified families to participate in the study. Once a family released their contact information by sending a signed release form back to Kansas SRS, the Missouri Department of Mental Health, or the Paul V. Sherlock Center on Disabilities, administrators at the

organizations/centers forwarded family contact information to the project team. Families were apprised of the project using a scripted overview and project staff answered questions as they arose. To reduce non-response rates, organization/center personnel followed-up with families about the initial letter via phone contact. All families that indicated favorable participation over the phone were included in the study.

The University of Kansas' Internal Review Board, the Human Subjects Committee on the Lawrence campus approved the study. Upon receiving contact information for respondents (e.g. teachers, family members, etc.) from our partner organizations, project personnel contacted the families over the phone to discuss the details of the project and invite them to participate. Dillman (2007) outlines suggested measures to increase response rate when contacting participants by phone for survey or interview purposes (e.g. call at different times of the day; discuss the importance of response rate etc.). Project personnel adhered to the measures outlined by Dillman to help with volunteer response rates. In addition, to parent consent, consent was requested of secondary respondents (e.g. teacher, adult family member, service provider) Primary respondents were responsible for identifying secondary respondents for the Supports Intensity Scale for Children but not responsible for contacting them to participate in the study. As soon as consent was obtained, a two-hour semi-structured interview was scheduled. The primary respondent was interviewed with the DABS and the Supports Intensity Scale for Children. The secondary respondent had the option to either participate with the primary respondent in completing the SIS-Children or schedule a separate interview based on their availability or preference. To support the participants, the semi-structured interviews took place at the respondent's local provider agency, school, or a convenient public but yet confidential agreed upon meeting place (e.g. public library meeting room). Respondents were given

the option, if necessary, to hold two meetings (one hour per instrument) instead of one two-hour meeting to accommodate schedules.

Training on instrument administration was conducted via the study's author until mastery of each of the instruments was obtained. This follows research by Tassé and McLaughlin (2008) demonstrating the importance and impact of training on interrater reliability on the SIS. For the SIS-Children we adapted the training methods outlined by Thompson et al. (2004b) used for the adult version of the SIS. In addition, project personnel received a full-day training on each of the instruments. Mastery of the instruments was determined by project personnel having over 80% agreement on scores obtained when watching 2 videotaped interviews. A total of 35 staff completed the full day training (KS n = 5, MO n = 7, RI n = 23), 22 project personnel reached reliability criteria and administered the instruments (KS n = 5, MO n = 4, RI n = 13). Each child and respondent was given a unique ID as to ensure confidentiality, and all assessment materials were stored in a locked facility. Additional training on parent and professional partnerships was included in the overall project staff training to enhance the interview process for both interviewers and interviewees alike.

Instruments.

The proposed study is a construct validity study, which concerns the "simultaneous process of measure and theory validation" (Strauss & Smith, 2009, p. 1). The two instruments used within the study are presently under construction by AAIDD. The following descriptions include all available information.

Diagnostic Adaptive Behavior Scale (DABS).

Since 1964 AAIDD (formerly AAMD), has been developing instruments to measure adaptive behavior. The *Diagnostic Adaptive Behavior Scale (DABS)* (Appendices A, B, and C) is AAIDD's most recent effort to identify limitations in adaptive behavior in order to assist with the diagnosis of

intellectual disability for people ages 4 to 21. The DABS is predicated on AAIDD's tripartite definition of adaptive behavior that states, "Adaptive behavior is the collection of conceptual, social, and practical skills performed that have been learned by people in order to function in their everyday lives" (Schalock et al., 2010, p. 43). The DABS examines three domains of adaptive behavior: (a) conceptual skills, (b) practical skills, and (c) social skills that have emerged from factor analytic studies. Its purpose is exclusively diagnostic for the diagnosis of intellectual disability, thus providing standard deviation cut-off scores. However, adaptive behavior measures can be used for planning rehabilitation and education services, evaluating the effectiveness of interventions over time, and identifying adaptive behavior patterns across various diagnoses. Bersani (2008) described in detail the process used in identifying items for the instrument. A list of 2,871 items were originally identified through existing literature and then reviewed by an expert panel with culturally diverse backgrounds that then narrowed down the item pool to 259 pilot items. Standardization was completed with approximately 1,300 children ages 4 to 21 without disability and 500 children with ID. Item Response Theory has been used to examine the DABS ability to reliability measure individual levels of adaptive behavior across varying ages as well as refine and reduce overall items to 25 items per subscale (Arias, Verdugo, Navas, & Gómez, 2013).

The DABS employs a semi-structured face-to-face interview lasting approximately 60 minutes. The interview is guided by a professional who meets the following criterion: (a) has worked with people with an intellectual disability or related developmental disability, (b) has previous assessment experience, and (c) has at least a Bachelor's degree. Respondents for the *DABS* can be adult family members, adult friends, educational professionals, direct care staff, and/or therapists. The single respondent for the assessment must know the focus person well and have had the opportunity to observe the person over an extended period of time across one or more environments.

In answering the questions outlined in the instrument, respondents are instructed to "reflect on the person's typical performance in adapting to the environmental demands typical for the individual's age group and cultural/ethnic group" (Tassé et al., 2008, p. 7). The rating system is on a four-point scale with the addition of a "no score" category. Table 3 outlines the rating system. Consequently, low scores on the DABS reflect limited adaptive behavior skills, while high scores reflect more evolved adaptive behavior skills.

Table 3

DABS Rating System

"0"	No	-Rarely or never does it
"1"	Yes	-Does it with reminders or assistance but rarely or never independently
"2"	Yes	-Does it sometimes independently – but sometimes needs reminders for assistance
"3"	Yes	-Does it always or almost always independently – never or rarely needs reminders or assistance
"NS"	No Score	-Has a physical impairment that impedes performance of this skill
	No Score	-Lacks opportunity due to cultural, gender, and/or geographic/regional factors
	No Score	-Lacks opportunity due to environmental constraints
	No Score	-The respondent has no direct knowledge of the individual's typical performance

Supports Intensity Scale for Children (Field Test Version 1.1) (SIS - Children).

The adult version of the Supports Intensity Scale (SIS) has been adopted by 15 states and provinces and been translated into seven different languages (Schalock et al., 2008; Weiss, Lunsky, Tassé, & Durbin, 2009). With the success of the adult SIS, requests for a similar tool tailored to children with intellectual disabilities were issued. As a result, a committee of experts from AAIDD gathered to develop a children's version of the adult SIS (Appendix D). A field-test of the new instrument commenced in February 2009.

The Supports Intensity for Children (SIS-Children) provides a mechanism for measuring the intensity of support needs for children with intellectual disability ages 5 to 16. The instrument is comprised of seven subscales with 61 items and a series of additional questions related to exceptional medical and behavioral circumstances experienced by the child of focus. The seven subscales were examined for inter-rater reliability in 2008 and their corresponding Pearson-product moment correlation coefficients are as follows: home living activities (r = .973); community and neighborhood activities (r = .855); school participation activities (r = .879); school learning activities (r = .938); health and safety activities (r = .900); social activities (r = .806); and advocacy activities (r = .809) (Thompson, Wehmeyer, Patton, Schalock, & Tassé, 2009). In addition to the seven subscales, there are 17 medical items and 14 behavioral items. These two domains are a consequence of the underlying assumption that children with exceptional medical conditions and behaviors will require increased levels of support beyond those identified in distinct life domains (Thompson et al., 2004).

The administrative methods of the SIS-Children are similar to those of the adult version. The instrument employs a semi-structured interview of two respondents who know the child well. Respondents can be parents, educational professionals, direct care staff, and even the focus child with a disability. It is essential that the interviewer collect information from two respondents when completing the instrument to gather reliable information. Respondents can be interviewed separately, in which case the average score for each item is determined at the completion of both interviews, or respondents can be interviewed together reaching consensus on each item resulting in a complete measure of support needs. To qualify as an interviewer, a person must have a bachelor-level degree and several years of experience working with individuals with intellectual disabilities or related developmental disabilities.

The Supports Intensity Scale for Children applies four different scales to rate responses. To rate exceptional medical needs and behavioral needs, the instrument uses the following rating scale: "0 = no support needed; 1 = some support needed (i.e., providing monitoring and/or occasional assistance); 2 = extensive support needed (i.e., providing regular assistance to manage the medical condition or behavior)" (Thompson et al., 2008). When examining support needs within the seven subscales, each response is measured across three dimensions: a) frequency, b) daily support time, and c) type of support. In order to support participants, visual representations of the rating scales were provided during the interviews for both the DABS and the SIS-Children.

Missing data.

The data included 0% to 2.0% missing observations on the scale items (0.3% missing data in total). Prior to analysis, missing data were imputed using Monte Carlo Markov Chain (MCMC) Bayesian approach of multiple imputation within SAS program under the PROC MI command. This data augmentation method allows one to generate unbiased parameter estimates from available data. MCMC has gained popularity as a procedure that provides greater flexibility when underlying distributions are unknown (McKnight, McKnight, Sidani, & Figueredo, 2007). Twenty imputed datasets were created via expectation-maximization (EM) algorithm as prior estimates for subsequent MCMC procedure as opposed to using random data (Enders, 2010). Maximum likelihood (ML) estimates from each of the imputed datasets were combined to make valid statistical inferences and a final imputed dataset (Rubin, 1987). The descriptive statistics of the domain scores are presented in Table 4.

Table 4

Descriptive Statistics of Domain Scores from Imputed Data

Factor	Domain	*M*	*SE*	LCL	UCL
DABS					
CS	CsLang	1.127	0.107		
	CsRead	1.152	0.093	0.971	1.334
	CsMo	0.798	0.087	0.628	0.968
	CsSl	0.780	0.072	0.639	0.920
	CsTime	1.188	0.105	0.983	1.394
	CsMeas	1.276	0.088	1.104	1.448
	CsProb	1.972	0.093	1.790	2.154
SS	SsInt	1.176	0.070		
	SsRes	1.433	0.069		
	SsEst	1.428	0.082	1.267	1.588
	SsW	0.620	0.078	0.466	0.774
	SsRule	1.159	0.100	0.964	1.354
	SsMan	1.307	0.065	1.179	1.434
	SsPr	1.394	0.073	1.251	1.537

Table 4 (cont.)

Descriptive Statistics of Domain Scores from Imputed Data

Factor	Domain	*M*	*SE*	LCL	UCL
DABS					
PS	PsDl	1.675	0.084	1.511	1.840
	PsSafe	1.150	0.089	0.975	1.325
	PsHc	1.817	0.086	1.648	1.987
	PsRout	2.011	0.095	1.825	2.197
	PsTele	1.025	0.129	0.771	1.279
SIS - Children					
SN	HLA	2.018	0.081	1.859	2.177
	CNA	2.509	0.071		
	SPA	2.550	0.073	2.407	2.694
	SLA	3.063	0.057	2.952	3.175
	HSA	2.518	0.069	2.382	2.655
	SA	2.438	0.082	2.279	2.598
	AA	2.404	0.071	2.264	2.544

Note. CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs. *M* = mean, *SE* = standard error, LCL = 95% lower confidence limit, UCL = 95% upper confidence limit. The LCL and UCL are not available when all items of a domain contain no missing observations.

Analytic procedures: Confirmatory factor analysis (CFA).

Confirmatory factor analysis (CFA), a special case of structural equation modeling (SEM), was performed to test the originally proposed theoretical structure of the DABS and of the SIS-Children. Factor analysis is a statistical method often used to identify latent constructs (i.e., factors) that underlie the associations among observed variables (e.g., individuals' responses on survey items). While exploratory factor analysis (EFA) is concerned with the identification of common factors, CFA seeks to test priori hypotheses about the links of common factors to their measured variables as well as the relations among those factors. CFA specifies predetermined, theory-based measurement model that reflects how the measured variables identify latent constructs and structural model that demonstrates how the latent constructs are associated with each other. CFA also allows for one to evaluate how well the constructs under review replicate the results from previous studies. In many cases, unpredicted findings in the structural model are related to misspecification issues in the measurement model (Brown, 2006). Thus, CFA is an "analytical tool of choice for developing and refining measurement instruments, assessing construct validity, identifying method effects, and evaluating factor invariance across time and groups" (Jackson, Gillaspy, & Purc-Stephenson, 2009, p. 6). CFA is based on partitioning the variance of each observed variable into two parts, common factor variance and unique factor variance. Accordingly, a CFA model can be written for a scale with *p* items as such:

$$\mathbf{Y}_i = \boldsymbol{\mu} + \boldsymbol{\Lambda}\boldsymbol{\eta}_i + \boldsymbol{\varepsilon}_i \qquad (1)$$

where $\mathbf{Y}_i$ is a *p*-dimensional vector of observed variables for individual *i,* μ is a *p*-dimensional vector of observed means, Λ is a $p \times m$ factor loading matrix where *m* indicates the number of common factors, η_i is an *m*-dimensional vector of common factor scores for individual *i*, and ε_i is a *p*-dimensional vector of unique factor scores for individual *i*. In this model μ and Λ are constant across

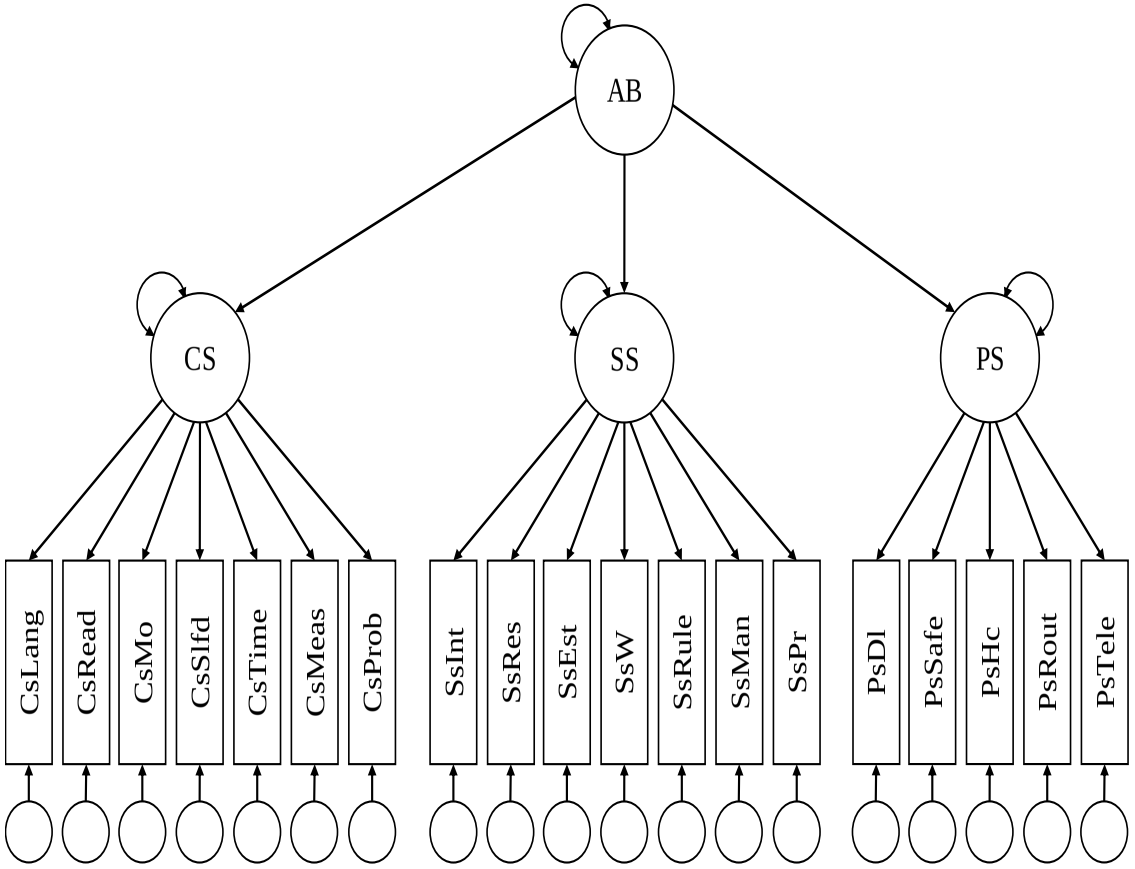
individuals, following $\eta_i \sim N(0, \Psi)$ and $\varepsilon_i \sim N(0, \Theta)$ where 0 is an *m*-dimensional zero vector, Ψ is an $m \times m$ matrix of common factor covariances, and Θ is a $p \times p$ matrix of unique factor covariances.

CFA was conducted separately for the DABS and SIS-Children to evaluate the alignment of the scales' factor solution with theory (Research Questions 1 and 2). Subscale (or domain) scores were created. Nineteen domain scores were constructed from a total of 112 DABS items that loaded on three first-order constructs which further loaded on a second-order factor Adaptive Behavior (AB) (see Figure 3). The DABS domain codes are as follows: seven domains of Conceptual Skills (CS) factor: language (CsLang), reading (CsRead), money (CsMo), self-direction (CsSlfd), time (CsTime), measurements (CsMeas), and problem solving (CsProb); seven domains of Social Skills (SS) factor: interpersonal (SsInt), responsibility (SsRes), self-esteem (SsEst), wariness (SsW), follows rules/obeys laws (SsRule), manners, (SsMan), and social problem solving (SsPr); and five domains of Practical Skills (PS) factor: activities of daily living (PsDl), maintains safe environment/safety (PsSafe), healthcare (PsHc), schedules and routines (PsRout), and use oftelephone (PsTele).

The SIS-Children was composed of seven domains constructed from 183 items loading on one first-order factor Support Needs (SN). The SIS-Children domains are: home and life activities (HLA), community and neighborhood activities (CNA), school participation activities (SPA), school learning activities (SLA), health and safety activities (HSA), social activities (SA), and advocacy activities (AA) (see Figure 4).

Figure 3

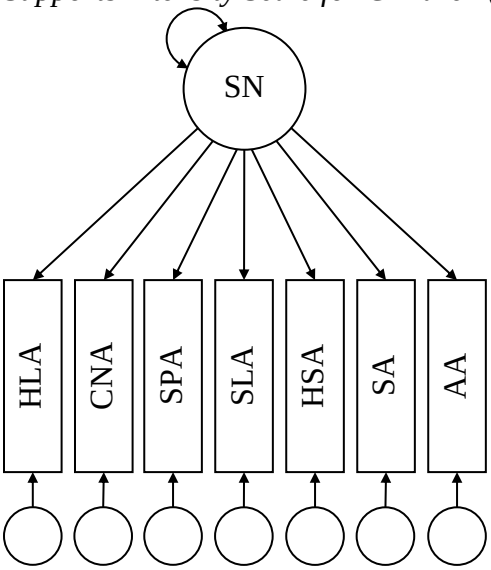
Diagnostic Adaptive Behavior Scale (DABS) Theoretical Model



Note. AB = adaptive behavior, CS = conceptual skills, SS = social skills, PS = practical skills. Nineteen domain codes are further described within the text.

Figure 4

Supports Intensity Scale for Children (SIS-Children) Theoretical Model



Note. SN = support needs, HLA = home and life activities, CNA = community and neighborhood activities, SPA = school participation activities, SLA = school learning activities, HSA = health and safety activities, SA = social activities, AA = advocacy activities

A hypothesized CFA model is generally evaluated with regard to (a) how well observed variables load onto a corresponding factor(s) (i.e., construct validity), and (b) how well the model fits the data (i.e., reasonableness of the model). Following this, we examined the factor loadings of the scale items and both relative and absolute goodness-of-fit indices including comparative fit index (CFI; Bentler, 1990), Tucker-Lewis index (TLI; Tucker & Lewis, 1973), root mean square error of approximation (RMSEA; Steiger & Lind, 1980), and standardized root mean square residual (SRMR). Analyses were performed using M*plus* version 6.11 (Muthén & Muthén , 2007).

Within M*plus*, all error variances, factor variances and covariances are freely estimated and all error covariances and indicator cross-loadings are fixed to 0 by default. In tested models, the fixed-factor scaling method (Brown, 2006) was used to set the scales of the scale items and the factors such that the variance of each common factor was fixed to 1.0 while factor loadings were all

freely estimated. The model parameters (μ, Λ, Ψ, Θ in Equation 1, factor correlations, factor regression coefficients) were obtained via maximum likelihood (ML) estimation.

Results.

Diagnostic Adaptive Behavior Scale (DABS).

Model specification involves the use of contemporary theoretical and relevant information in order to explain the interactions among observed variables in the context of underlying constructs (Ullman, 2001). However, according to Duncan (1975): "Indeed it would require no elaborate sophistry to show that we will never have the "right' model in any absolute sense" (p. 101). Ultimately it is the iterative nature of continuous empirical investigation that provides evidence for relative use and application of instruments and theory.

The first CFA examined the construct validity of the DABS's three first-order common factors leading to the second-order factor of Adaptive Behavior (AB). This model represents the tripartite model of adaptive behavior as a collection of conceptual, practical, and social skills outlined by Schalock et al. (2010). The factor loadings were all in an expected direction (i.e., positive) and significant at .001 alpha level (see Table 5). They accounted for 84.0%, 83.0%, and 93.7% of the CS, SS, and PS factor variances, respectively. The loadings of these three first-order factors on the second-order construct (AB) were also positive and significant at .001 alpha level. However some loadings were small in size a standardized loading of <0.70: CsProb (0.322), PsRout (0.398), and PsTele (0.600) indicating these domains were unreliable indicators of the associated factor. It is equally important to examine the standard errors to determine how closely the model's parameter estimates approximate the true population parameter values. "The standard errors associated with each of the parameter estimates should not be excessively large…especially when compared to other parameter estimate standard errors" (Raykov & Marcoulides, 2006, p. 40). The reported standard

errors that may be interpreted as excessively large in comparison to other domain estimated standard errors are the standard errors of the domains of CsProb (0.092), PsRout (0.088), and PsTele (0.068).

Table 5

Standardized Factor Loadings for DABS

Factor	**Domain/Factor**	**Loading**	***SE***	***p***	R^2
CS	CsLang	0.851	0.031	< .001	0.725
	CsRead	0.860	0.029	< .001	0.740
	CsMo	0.803	0.039	< .001	0.644
	CsSl	0.824	0.035	< .001	0.679
	CsTime	0.883	0.026	< .001	0.780
	CsMeas	0.897	0.023	< .001	0.805
	CsProb	0.322	0.092	< .001	0.104
SS	SsInt	0.854	0.031	< .001	0.729
	SsRes	0.807	0.039	< .001	0.651
	SsEst	0.712	0.053	< .001	0.507
	SsW	0.718	0.052	< .001	0.516

Table 5 (cont.)

Standardized Factor Loadings for DABS

Factor	**Domain/Factor**	**Loading**	***SE***	***p***	***R^2***
SS					
	SsRule	0.804	0.040	< .001	0.647
	SsMan	0.895	0.025	< .001	0.800
	SsPr	0.778	0.043	< .001	0.604
PS	PsDl	0.751	0.048	< .001	0.564
	PsSafe	0.902	0.026	< .001	0.814
	PsHc	0.778	0.045	< .001	0.605
	PsRout	0.398	0.088	< .001	0.158
	PsTele	0.600	0.068	< .001	0.360
AB	CS	0.916	0.028	< .001	0.840
	SS	0.911	0.030	< .001	0.830
	PS	0.968	0.027	< .001	0.937

Note. AB = adaptive behavior, CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs.

Model fit indices indicated model fit was less than acceptable RMSEA = 0.135, CFI = 0.832, and TLI = 0.807, although SRMR (0.073) suggested good fit. Through the use of modification index (MI) we made minor modifications to the original model which included double-loading and residual covariances. Modification index reflect the expected drop in the χ^2 if the fixed parameter in question

is freed. We started with the additional loading of SsRule on the CS factor which resulted in the greatest increase in model fit and then sequentially added a few (5) residual covariances as theoretically appropriate until we reached adequate model fit. Table 6 lists the goodness-of-fit indices for each of the original model and the six augmented (modified) models.

Table 6

DABS Models: Goodness-of-Fit Indices

DABS Models	***df***	χ^2	***p***	**SRMR**	**RMSEA**	**CFI**	**TLI**
Theoretical Model	149	427.18	< .001	0.073	0.135	0.832	0.807
Model A. Loading of SsRule on CS	148	407.66	< .001	0.069	0.131	0.846	0.822
Model B. Covariance between PsSafe and SsW	147	371.05	< .001	0.068	0.122	0.867	0.846
Model C. Covariance between CsTime and CsLang	146	346.90	< .001	0.068	0.116	0.881	0.861
Model D. Covariance between PsDl and CsRead	145	323.10	< .001	0.068	0.110	0.895	0.876
Model E. Covariance between SsInt and CsLang	144	307.45	< .001	0.067	0.105	0.903	0.885
Model F. Covariance between SsPr and CsRead	143	280.04	< .001	0.065	0.097	0.917	0.901

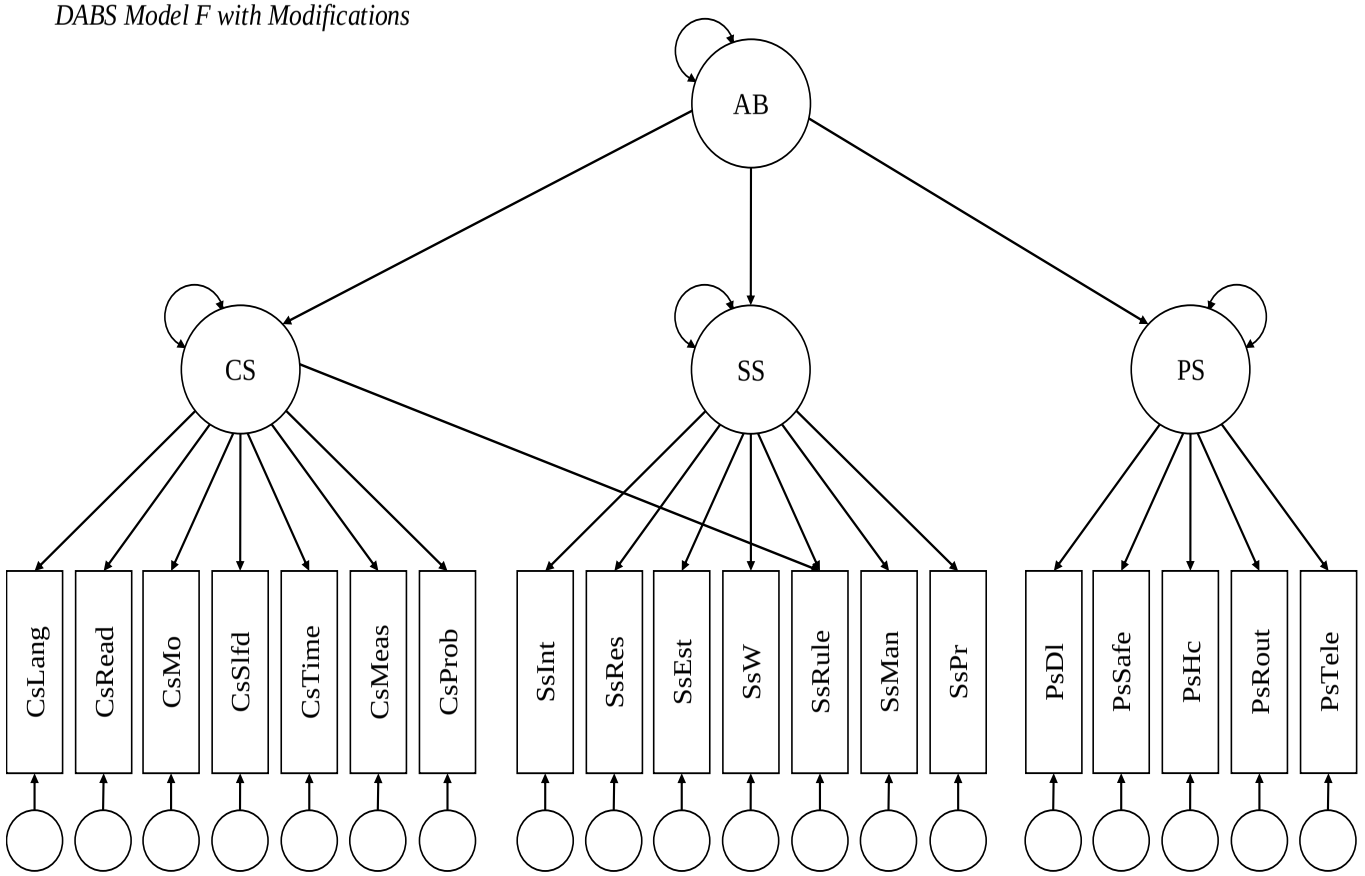
Note. df = degrees of freedom.

Model fit improved to acceptable or more than acceptable in Model F (see Figure 5): RMSEA = 0.097, SRMR = 0.065, CFI = 0.917, TLI = 0.901. Taken together the CFA results supported the

hypothesized tripartite factor structure, with minor modifications suggesting that the items and domains of the DABS are reliable measures of adaptive behavior among children with intellectual disability.

Figure 5

DABS Model F with Modifications



Note. AB = adaptive behavior, CS = conceptual skills, SS = social skills, PS = practical skills. The residual covariances of CsLang with CsTime and SsInt; CsRead with SsPr and PsDl; and SsW with PsSafe are also estimated but not shown in this figure for the sake of simplicity.χ^2 (143) = 280.041 (p < .001), RMSEA = 0.097, SRMR = 0.065, CFI = 0.917, TLI = 0.901.

Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children).

The second CFA examined the construct validity of Support Needs (SN) as measured through the SIS-Children. All of the factor loadings were in an expected direction (i.e. positive) and significant at .001 alpha level (see Table 7). All the standard errors fell within a reasonable range when taken in the context of the other estimates of standard error (0.028 to 0.064). School learning activities (SLA) represented the weakest loading (0.628) indicating it is not the most reliable measure of the SN factor. The strongest domain was community and neighborhood activities (CNA) (0.882).

Table 7

Standardized Factor Loadings for SIS-Children

Factor	**Domain**	**Loading**	***SE***	***p***	R^2
SN	HLA	0.844	0.033	< .001	0.712
	CNA	0.882	0.028	< .001	0.777
	SPA	0.835	0.035	< .001	0.698
	SLA	0.628	0.064	< .001	0.395
	HSA	0.832	0.036	< .001	0.692
	SA	0.724	0.052	< .001	0.524
	AA	0.748	0.048	< .001	0.559

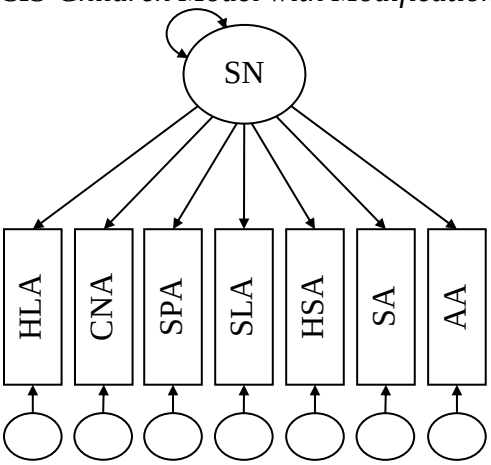
Note. SN = support needs, HLA = home and life activities, CNA = community and neighborhood activities, SPA = school participation activities, SLA = school learning activities, HSA = health and safety activities, SA = social activities, AA = advocacy activities.

The theoretical model represents less than acceptable model fit – RMSEA = 0.150, CFA = 0.934, TLI = 0.901, although SRMR (0.047) suggested close fit. In order to achieve better model fit, we applied two modifications to the original model by allowing residual covariances of Advocacy

Activities (AA) with (SLA) and Social Activities (SA). These modifications improved model fit to acceptable or more than acceptable RMSEA = 0.102, CFI = 0.974, TLI = 0.954, SRMR = 0.036. (see Figure 6)

Figure 6

SIS-Children Model with Modification



Note. SN = support needs, HLA = home and life activities, CNA = community and neighborhood activities, SLA = school learning activities, HSA = health and safety activities, SA = social activities, AA = advocacy activities. The covariances of AA with SLA and SA are also estimated but not shown in this figure for the sake of simplicity. χ^2 (12) = 24.708 ($p < .05$), RMSEA = 0.102, SRMR = 0.036, CFI = 0.974, TLI = 0.954.

The modified models and their goodness-of-fit indices are captured in Figure 6 and Table 8. Taken together, the parameter estimates and model fit results supported the hypothesized factor structure, with minor modifications to the structure. Thus, the items and domains of the SIS-Children are considered as reliable measures of support needs among children with intellectual disability.

Table 8

SIS-Children Models: Goodness-of-Fit Indices

SIS-Children Models	***df***	χ^2	***p***	**SRMR**	**RMSEA**	**CFI**	**TLI**
Theoretical Model	14	46.00	< .001	0.047	0.150	0.934	0.901
Model A. Covariance between AA and SLA	13	35.58	< .001	0.039	0.131	0.953	0.925
Model B. Covariance between AA and SA	12	24.71	.016	0.036	0.102	0.974	0.954

Note. df = degrees of freedom, AA = advocacy activities, SLA = school learning activities, SA = social activities

Discussion

"The manifestation of [intellectual disability] involves the dynamic, reciprocal engagement among intellectual ability, adaptive behavior, health, participation, context, and individualized supports" (Schalock et al., 2010, p. 15). Over time, the definition and diagnostic criteria of intellectual disability have evolved from a deficit found within the person requiring intensive remediation and treatment, to a construct that reflects the functional systemic approach incorporating a socio-ecological view of disability and emphasizing a person's functioning as a result of his or her interactions within the environment (Luckasson, & Schalock, 2012). As the theoretical and applied definition of intellectual disability advances so must the instruments used to assess intellectual disability. Thus, the purpose of this study was to explore the validity of the constructs of adaptive behavior and support needs as measured in two new instruments: the Diagnostic Adaptive Behavior Scale (DABS) and Supports Intensity Scale for Children *(Field Test Version 1.1)* (SIS-Children) developed by the American Association on Intellectual and Developmental Disabilities.

Before discussing findings and opportunities for future research, we point out several limitations of the study that should be acknowledged when interpreting results. Most evident is the moderate sample size used to perform the confirmatory factor analyses. A common question when a researcher outlines methodology for an empirical study is "what sample size do I need for my analyses?" With confirmatory factor analysis there have been several rules of thumb (e.g. 5 to 10 observations per parameter, 50 observations per variable, more subjects than variables, no less than 100, etc.). In reality the sample size depends upon many variables that are most likely not identified prior to data collection such as size of the final model, distribution of variables, amount of missing data, and strength of the relations among variables (Muthén & Muthén, 2002). In our study we aimed for a sample size of 100 for CFA and any further SEM analyses. Because of this moderate size we could perform analyses only on subscale/domain scores rather than on item-level. It would be strongly advisable in future studies to increase the sample size so that both exploratory factor analyses and item-level confirmatory factor analyses can be performed, achieving greater depth and diversity of valuable information needed to make effective modifications to the instruments and adjust for model parsimony. A second limitation to the study is the composition of target population both in age and in geographic profile. The overwhelming majority of participants were in the 9 to 16 age range while only 18% were ages 4-8 even though the participants were selected from three different states (two Midwestern and one Eastern). In order to perform multigroup CFA and identify measurement invariance across groups such as age, gender, disability type and geographic location we would need to have accounted for large samples among these variables. Being able to test for measurement invariance would provide additional support for the validity of the instruments. There are also substantial differences in the supports and services provided across localities, and states to people with intellectual disability (Braddock et al. 2013). Thus, the ability to examine measurement

invariance on perceptions of support needs across states would be valuable for funding and policy development. Finally, because this study represents one of the first empirical evaluations of each of the two instruments and their corresponding theoretical constructs it is difficult to effectively assess validity without comparative tools and studies. The instruments were in pre-publication form and have not undergone extensive reliability and validity assessments. As such there is a great need for further independent evaluations of each of the two instruments to add to their validity and reliability for use with children with an intellectual disability.

Acknowledging the above limitations, the DABS and SIS-Children nevertheless both conformed to the theoretical models with minor model modifications. The confirmatory factor analysis with the DABS identified three areas for improvement in model/instrument structure. First, there were three domains that were composed of single manifest variables (CsProb – problem solving in conceptual skills, PsRout – schedules and routines in practical skills, and PsTele – use of telephone in practical skills). These domains represented the weakest indicators of their constructs of conceptual and practical skills based on their standardized factor loadings and residual variance. Given the representation it may be advisable to eliminate these items to reach greater model parsimony. Second, model modification indices identified the double-loading of follows rules/obeys laws (SsRule) on the latent construct of conceptual skills as well as social skills. It may be that the manifest items that make up the SsRule domain relate more the comprehension of symbolic representations (e.g. reading street signs) which would be more appropriately placed in conceptual skills – language; reading and writing; and money, time, and number concepts as suggested by the stronger correlation of SsRule with the domains in the latent construct of conceptual skills *(r* = 0.672 – 0.795) as opposed to correlations with social skills domains (*r* = 0.534 – 0.665). In examining construct validity there is an expectation of greater correlation of items within a construct rather than external factors on

unpredicted constructs. Finally, the additional modification indices indicated residual covariance among several domains (PsSafe with SsW, CsRead with PsDl, CsRead with SsPr, CsLang with SsInt, and CsLang with CsTime). According to Brown et al. (2004) there is a "frequent necessity to model nonrandom error in test instruments due to method effects" (p. 84). Thus the addition of residual covariances may lead to more interpretable solutions and are often seen as preferable (Sexton, King-Kallimanis, Conroy, & Hickey, 2013). However, the freeing of residual covariances can be dangerous because their presence indicates that there is some common element between the pairs of items that was not taken into account by the latent variable. Their inclusion to achieve adequate model fit only supports the necessity of more research to identify the item-level correlations on the DABS.

The CFA of the SIS-Children provided support for the seven domain theoretical model of support needs, with minor model modifications. The SIS-Children modification indices indicated model strain was a result of residual covariance between two pairs of items: advocacy activities with school learning activities, and advocacy activities with social activities. These three domains were relatively regarded as the three weakest indicators of the latent construct of support need with loadings between 0.628 and 0.748. As seen with the DABS, RMSEA did not reach the critical value to support model fit even with the release of the above residual covariance paths originally constrained to zero. However, when examining goodness-of-fit statistics no one statistic should guide model conclusions but rather an assessment of all fit statistics should be taken into consideration. We determined to accept SIS-Children's Model b with the above modifications due to the acceptable fit as measured by CFI, TLI, and SRMR and representing both absolute and relative fit indices. Advocacy activities appears to be the domain with the least empirical support within the SIS-Children and one could argue less refined than the other domains as to its manifestation in younger years. Because the SIS-Children is based upon the SIS designed for adults, future research may examine the

item-level analysis of advocacy activities across the life span, specifically when those skills develop, and under what environmental opportunities.

In conclusion, this study examined and validated the factor structure supporting the theoretical tripartite model of adaptive behavior and the seven domain structure of support needs while simultaneously providing preliminary support for the administration of the DABS and the SIS-Children as assessment tools for children with intellectual disability. Further evaluation with larger more diverse samples is needed to provide additional evidence for the validity of these newly developed instruments and information regarding the theoretical relationship between the constructs of adaptive behavior and support needs.

Chapter 3: Examining the Theoretical Relationship between Adaptive Behavior and Support Needs (Study 2)

Introduction

The paradigm shift to a support needs perspective of disability away from a pathology or deficit model has significantly impacted the diagnosis and delivery of services and supports to people with intellectual disability . As noted by Schalock et al. (2010), as a result of the 2010 constitutive definition of intellectual disability, "…disability is neither fixed nor dichotomized: rather it is fluid, continuous and changing, depending on the person's functional limitations and the supports available within the person's environment" (p. 110). In 2012, Luckasson and Schalock introduced a functional approach to intellectual disability that suggested a systemic approach toward understanding how inputs of human functioning dimensions interact with systems of support to derive outcomes of human functioning within the context of a person's environment. Consequently, quality of life outcomes for people with intellectual disability, which motivate contemporary empirical literature and the development of measurement tools, must include dimensions of human functioning and support needs. It is the purpose of this study to continue the iterative process of theory pruning to refine and elaborate the current theoretical underpinnings of the constructs of support needs and adaptive behavior.

> "Good theory teaches readers and researchers something new, something they could not have learned elsewhere…offers more than old wine in new bottles…in reading good theory one has a sense of discovery and illumination" (Kline & Zedeck, 2004, p. 932).

Over the past decade there have been several studies examining the theoretical relationship between the constructs of support needs and adaptive behavior (Brown, Ouellette-Kuntz, Bielska, & Elliot, 2009; Claes, Van Hove, van Loon, Vandervelde, & Schalock, 2009; Harries, Guscia, Kirby,

Nettelbeck, & Taplin, 2005; Wehmeyer, Chapman, Little, Thompson, Schalock, & Tassé, 2009; Thompson et al., 2004). Each of these studies addresses the hypothetical question: Do adaptive behavior and support needs represent the same underlying construct? To date, there has not yet been declarative, empirical evidence allowing for a clear answer regarding this question. The reason for this is twofold: First, researchers face the challenge of an immature theoretical construct of support needs. While the construct of adaptive behavior has been well established as a tripartite model of conceptual, social, and practical skills that have been learned and are performed by people in their everyday lives (Tassé et al., 2012; Thompson, McGrew, & Bruininks, 1999), the theory of support needs is in its infancy only recently emerging as a measurable construct based on AAIDD's definition as a "…psychological construct referring to the pattern and intensity of supports necessary for a person to participate in activities linked with normative human functioning" (Thompson et al., 2009). In fact, Thompson, McGrew, and Bruininks (2002) described support needs as a "slippery construct" (p. 36). Thus, the construct of support needs, because it is a relatively new construct, requires further exploration and the structure is in need of further inquiry (Harries, 2008). A second reason there has not been definitive evidence regarding the theoretical relationship between the two constructs is the interpretation of empirical results. As Cronbach & Meehl (1955) stated "construct validity is not to be identified solely by particular investigative procedures, but by the orientation of the investigator" (p. 282). In order to evaluate empirical results effectively, we must first review the literature and interpretations of these research efforts.

In1992, AAIDD significantly altered the worldwide perspective of intellectual disability (then referred to as mental retardation) by eliminating levels of mental retardation and replacing them with intensities of needed supports in the 9th edition of the *Mental Retardation: Definition, Classification and Systems of Supports* manual (Luckasson et al.,). Four support intensity categories were

introduced: intermittent, limited, extensive, and pervasive. It was through these constellations of supports that programs and services were to be developed (Luckasson & Spitalnick, 1994; Wehmeyer, 2003). While the support intensity classification system was met with enthusiasm by families and professionals, there were concerns about the practical application with the lack of a conceptual structure and tools to measure support needs (Harries, 2008). To address this concern, Thompson and colleagues introduced the *Supports Intensity Scale (SIS)* as a tool to measure the level of support needed by adults with intellectual disability to successfully participate in everyday life (Thompson et al., 2004). As part of the instrument validation and construct validity the SIS was compared to measures of adaptive behavior.

The first study completed by Thompson et al. (2002) examined the correlation between the field-test version of the *Supports Intensity Scale (SIS)* with the Inventory for *Client and Agency Planning (ICAP*) (Bruininks et al., 1986) using scores from 57 people with intellectual disability. The ICAP is a popular instrument for evaluating adaptive behavior that provides scores across five domains: motor skills, social and communication skills, personal living skills, community living skills, and maladaptive behavior. It is important to note there is an expected insignificant relationship between maladaptive behavior and support needs that is based on theoretical and empirical evidence (Thompson et al., 2002). The authors identified significant correlations at the 0.05 level of subscale scores between the ICAP and SIS ranging from -0.11 to -0.79. Using MacEachron (1982) correlation coefficient strength guidelines, they predicted that some subscale scores on the ICAP and SIS would correlate in the moderate range (0.4 to 0.6) while all others (maladaptive behavior) would correlate less. They concluded that results were “equivocal” and the nature of the relationship warranted further study.

In the SIS Manual, (Thompson et al., 2004) presented the correlation between the SIS, the *Vineland Adaptive Behavior Scale (VABS)* (Sparrow, Bella, & Cicchetti, 1984), and the ICAP as a method of investigating construct validity. The VABS examines adaptive behavior in the domains of communication, socialization, daily living skills, and motor skills with an overall adaptive behavior composite score. Correlation coefficients of subscale scores between the SIS and ICAP ranged from -0.23 to -0.68 and total score correlation of -0.49. Between the SIS and VABS subscale scores correlation coefficients ranged from -0.45 to -0.61 and a total score correlation of -0.59. The authors concluded that "these coefficients highlight that the SIS is not measuring the same construct as adaptive behavior scores or intelligence tests" (p. 111).

Following these two studies, researchers from Australia, Canada, and the Netherlands investigated the relationship between the two constructs within their studies. Two related studies emerged from Australia. Harries, Guscia, Kirby, Nettelbeck, & Taplin (2005) examined the relationship between adaptive behavior and support needs through the administration of the field-test version of SIS, the *Adaptive Behavior Scale – Residential and Community 2nd Edition (ABS-RC:2)* (Nihira et al., 1993), and the ICAP to 80 people with intellectual disability. The SIS and ICAP subscale correlation coefficients ranged from -0.64 to -0.94 and between the SIS and ABS-RC:2 ranged from -0.63 to -0.92. All coefficients were significant at the 0.01 level. Using exploratory and confirmatory factor analysis they established that a single factor explained 75.8% of the variance associated with the SIS, ICAP and ABS-RC:2 subscales. In contrast to Thompson and colleagues (2002, 2004), Harries et al. interpreted the results to "offer support for a common underlying construct" (p. 393). Limitations of the study included the underrepresentation of the population as the study participants were all receiving institutional care, the use of a pre-publication version of the SIS, and only a single respondent completed the assessments (as opposed to two respondents outlined in

the 2004 SIS Manual). In 2006 the above authors examined the relationship again, this time as a component of a larger study examining the reliability of a newly developed measurement of support needs, the *Support Need Assessment Profile (SNAP)* (Gusica, Harries, Kirby, Nettelbeck, & Taplin). One hundred and fourteen residents with a disability, 83 of whom had intellectual disability, were assessed using the SIS, ICAP, and SNAP. The results mirrored those from the 2005 study identifying significant correlations ($p < 0.01$) among the SIS, ICAP and SNAP scores (range from 0.75 between the ICAP and SNAP to 0.87 between the ICAP and SIS) when examining the subpopulation of participants with ID. They stated that "High correlations found between the three instruments support the notion that adaptive behavior and support are measuring a closely related construct" (p. 154).

Three studies were performed in 2009 that examined the relationship. In Canada, Brown, Ouellette-Kuntz, Bielska, & Elliot endeavored to establish whether measures of support act as a proxy for adaptive functioning. They used the responses from 40 staff or family members of people with ID on the SIS and the *Scales of Independent Behavior – Revised (SIB-R) short form* (Bruininks et al., 1996). The SIB-R measures adaptive behavior across four domains: motor, social interaction and communication, personal living and community living. The items were combined and standardized to create an overall Broad Independence W score. Maladaptive behaviors are also measured to produce a maladaptive index. Together these two scores produce the Support score. Results indicated strong negative correlations between the SIS subscales and SIB-R broad independence W score (-0.71 to -0.93) ($p < 0.05$). With this evidence they concluded that the two instruments and thus constructs of adaptive behavior and support needs represent the same underlying construct. An apparent limitation to this study was the small sample size. Despite, however, the small sample size, the authors noted their findings were consistent with previous research (Thompson et al., 2002). In the Netherlands, Claes, Van Hove, van Loon, Vandervelde, & Schalock examined the

correlation between the Dutch translation of the *SIS-D* and the VABS (*Vineland –Z)* (de Bildt & Kraijer, 2003). Seventy-five participants with ID were included in the study. The correlation coefficients they obtained for subscale scores were significant at 0.01 level and ranged from -0.37 to -0.89. In their discussion of the results they stated that "the SIS and the Vineland-Z measure related but different constructs (needed support vs. adaptive behaviour)" (p. 336). Finally, Wehmeyer, Chapman, Little, Thompson, Schalock & Tassé (2009) collected data on 274 adults with intellectual disability to further examine the relationship between support needs and personal competence. The efficacy of the SIS was examined by comparing results with the *Developmental Disabilities Profile (DDP)* (Brown et al., 1986). The DDP yields subscale scores across three domains: adaptive behavior, maladaptive behavior, and medical/health related concerns. The DDP is considered to be a measure similar to that of an adaptive behavior scale. Correlational and regression analyses were performed to examine the relationship between these two instruments. Of distinct relevance to our investigation was the correlation among the DDP adaptive behavior domain and SIS total score domain (support needs index, SNI) which was .82 indicating a strong correlation. The authors concluded, "whereas these measures were clearly related, our interpretation of these results is that these instruments may not be measuring identical constructs" (p. 12).

The overall conclusion from these studies appears to be that the constructs of adaptive behavior and support needs are related but represent different perspectives. It is the purpose of this study to examine further the nature of the relationship through the application of structural equation modeling techniques.

Method

Participants.

Based upon initial estimates of statistical power, a total sample size (N) of 100 focus children was identified for assessment (Gorsuch, 1983; Kline, 1979; Loehlin, 1998*)*. In the study we collected data on 120 children to compensate for attrition and faulty data. To be eligible for the study the child had to be between the ages of 4 and 16, and have a formal diagnosis of intellectual disability (mental retardation in some areas). The former criterion reflects the more restrictive inclusionary criterion outlined between the two instruments. For the purposes of this study, intellectual disability was defined in accordance to the AAIDD 2010 definition:

> "[intellectual disability is] characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed by conceptual, social, and practical adaptive skills. This disability originates before the age of 18" (Schalock et al., 2010, p. 1).

Detailed demographic information was gathered on children and respondents to control for confounding variables in the analytical model (Spector, 1981). After examining the demographic information and affirming inclusionary criteria were met, a total sample of N=102 children were the focus of the study. Males comprised 74% (*n* = 75) of the sample population while females comprised 26% (*n* = 27). Children ranged in age from 5 to 16 (*Mean* = 11.5, *SD* = 2.92). Forty-three percent of children (*n* = 33) were in middle school (grades 6-8), 39.6% (*n = 40)* in elementary school (kindergarten thru 5th grade) and 16.8% (*n* = 17) in high school. The majority of children (88%, *n* = 90) were identified as White, 4% (*n* = 4) Asian, 4% (*n* = 4) Black or African American, 3% (*n* = 3) American Indian or Alaska Native, and 1% (*n* = 1) Hispanic or Latino. The predominant language spoken by the children was English (97%), although 3% specified other languages which included Thai, Laotian, and American Sign Language. The children's diagnosis and special education settings can be reviewed in Table 9. Respondents were instructed to identify all conditions that applied so demographics account for co-morbidity of disabilities.

Table 9

Demographic Characteristics of the Children of Focus (N = 102)

	n	**%**
Focus Children: Disability Category		
Mental Retardation/Intellectual Disability	67	66%
Developmental Disability	58	57%
Speech/Language Impairment	50	49%
Autism	50	49%
Learning Disability	44	43%
Physical Disability	32	31%
Focus Children School Placement		
General Education	14	14%
Special Education – Less than half day	21	21%
Special Education – Half day or more	63	62%
Other	4	4%

The SIS Manual requires that two respondents who know the child well engage in the semi-structured interviews. The rationale for utilizing two respondents is to capture a better overall picture of the child's support needs as perspectives vary as well as support needs across environments. To be eligible as a respondent, the person had to have known the child under consideration for at least three months and had recent opportunities to observe the child in one or more settings. Respondents could be educational professionals (e.g. teachers, paraprofessionals, therapists, etc.), adult family members, family friends, or direct support personnel. Our ideal configuration of participants included one parent and one teacher so as to incorporate the varied environments in which the child functioned. Table 10 describes both the primary and secondary respondent's relationship to the children of focus. The *Diagnostic Adaptive Behavior Scale (DABS)* collects more detailed demographic information

than the *Supports Intensity Scale for Children (SIS-Children)* on respondents and so consequently we have a broader picture of the primary respondents in the study. Eighty–six percent of the primary respondents were female (n = 88) and 14% (n = 14) male; 57.8% were between the ages of 40 - 49; 16% 50 or older and 25% 39 or younger. The majority of primary respondents had completed college (56.9%).

Table 10

Relationship of Respondent to Child of Focus

	n	**Percent %**
Respondent #1 Relation to Child		
Mother	81	79%
Father	12	12%
Grandparent	4	4%
Other	3	3%
Caregiver	2	2%
Respondent # 2 Relation to Child		
Mother	6	6%
Father	29	28%
Other	26	25%
Caregiver	13	13%
Grandparent	9	9%
Teacher	7	7%
Aunt/Uncle	5	5%
Peer/Friend	4	4%
Sibling	3	3%

Procedure

Sampling methods.

One hundred and two focus children recruited through the Kansas Department Social and Rehabilitation Services (Kansas SRS) (*n* = 65), the Missouri Department of Mental Health (*n* = 16), and the Paul V. Sherlock Center on Disabilities the Rhode Island College University Center on Excellence and Developmental Disabilities (UCEDD) (*n* = 21) participated in the study. Each agency/center agreed to send letters to those they served, who according to their records, met the

inclusionary criteria for the project. The letters requested the release of family contact information to the project team so that they could then contact them to discuss their potential participation. The method by which families were recruited to participate was identical aside from who made the initial contact. In the state of Kansas 240 families received an information letter about the project from Kansas SRS. This number represented 26.2% of those who received services under the MR/DD Home and Community Based Services (HCBS) Waiver that provides services and supports to people with intellectual disability or other related developmental disabilities that are eligible for institutional care but choose to live in the community. After the initial letter was sent, the project team utilized a stratified proportional sampling technique (Lohr, 1999) to identify the appropriate number of randomly selected participants from each of the 27 Community Developmental Disability Organizations (CDDO's) regional offices across Kansas. In Missouri, the Department of Mental Health directly solicited the support of the regional directors of developmental disability service to assist in the recruitment process. In the state of Missouri, eleven regional offices support a total of 32,620 people with developmental disabilities and serves as the point of entry into the DD system in the state (Schanzmeyer, 2013). Three out of the eleven regional directors (located in Rolla, Kirksville and Joplin) responded to the request and worked with their direct service staff to identify eligible families for the project. These three regions serve 13% (Rolla (1,811), Kirksville (847), and Joplin (1,653) of Missouri's developmental disability population. Finally, the Paul V. Sherlock Center in RI utilized their UCEDD trainee program to train 23 graduate students on the administration of the instruments who then identified families to participate on the study. Once a family released their contact information by sending a signed release form back to Kansas SRS, the Missouri Department of Mental Health, or the Paul V. Sherlock Center on Disabilities, administrators at the organizations/centers forwarded family contact information to the project team. Families were

apprised of the project using a scripted overview and project staff answered questions as they arose. To reduce non-response rates, organization/center personnel followed-up with families about the initial letter via phone contact. All families that indicated favorable participation over the phone were included in the study.

The University of Kansas' Internal Review Board, and the Human Subjects Committee on the Lawrence campus both approved the study. Upon receiving contact information for respondents (e.g. teachers, family members, etc.) from our partner organizations, project personnel contacted the families by phone to discuss the details of the project and invite them to participate. Dillman (2007) outlines suggested measures to increase response rate when contacting participants by phone for survey or interview purposes (e.g. call at different times of the day; discuss the importance of response rate, etc.). Project personnel adhered to the strategies outlined by Dillman to help with volunteer response rates. In addition to parent consent, consent was requested of secondary respondents (e.g. teacher, adult family member, service provider) Primary respondents were responsible for identifying secondary respondents for the Supports Intensity Scale for Children but not responsible for contacting them to participate in the study. As soon as consent was obtained, a two-hour semi-structured interview was scheduled. The primary respondent was interviewed with the DABS and the Supports Intensity Scale for Children. The secondary respondent was only involved in the collection of information on the SIS-Children and had the option to either participate with the primary respondent in completing the SIS-Children or schedule a separate interview based on their availability or preference. To support the participants, the semi-structured interviews took place at the respondent's local provider agency, school, or a convenient public but yet confidential agreed upon meeting place (e.g. public library meeting room). Respondents were given the option, if necessary, to

hold two meetings (one hour per instrument) instead of one two-hour meeting to accommodate schedules.

Training on instrument administration was conducted via the study's author until mastery of each of the instruments was obtained. This follows research by Tassé and McLaughlin (2008) which demonstrated the importance and impact of training on interrater reliability on the SIS. For the SIS-Children we adapted the training methods outlined by Thompson et al., (2004b) used for the adult version of the SIS. In addition, project personnel received a full-day training on each of the instruments. Mastery of the instruments was determined by project personnel having over 80% agreement on scores obtained when watching 2 videotaped interviews. A total of 35 staff completed the full-day training (KS n = 5, MO n = 7, RI n = 23), 22 project personnel reached reliability criteria and these 22 then administered the instruments (KS n = 5, MO n = 4, RI n = 13). Each child and respondent was given a unique ID as to ensure confidentiality, and all assessment materials were stored in a locked facility. Additional training on parent and professional partnerships were included in the overall project staff training to enhance the interview process for both interviewers and interviewees alike.

Instruments.

The two instruments used within the study are currently being field-tested and validated by the authors and AAIDD. The following descriptions include all available information on the instruments.

Diagnostic Adaptive Behavior Scale (DABS).

In 2006, the American Association on Intellectual and Developmental Disabilities (AAIDD) began the process of developing an instrument that could accurately and precisely identify significant limitations in adaptive functioning to aid in the diagnosis of intellectual disability.(Navas, Verdugo,

Arias, & Gomez 2002). The efforts resulted in the forthcoming *Diagnostic Adaptive Behavior Scale (DABS)* (Appendices A, B, and C) a tool intended to measure the evolving conception of adaptive behavior - "a collection of conceptual, social, and practical skills that have been learned by people in order to function in their everyday lives" (Luckasson et al. 2002, p. 14). Unlike other measures of adaptive behavior, the DABS includes relevant items related to higher order social skills such as gullibility (i.e. wariness) and naiveté which can be critical in the diagnosis of mild intellectual disability (Greenspan, 2006a; 2012; Greenspan, Loughlin, & Black, 2001; Lamourex-Herbert, Morin, & Crocker, 2010). Its purpose is exclusively diagnostic and it provides standard deviation cut-off scores. Using these cut-off scores the DABS can be used for planning rehabilitation and education services, evaluating the effectiveness of interventions over time, and identifying adaptive behavior patterns across various diagnoses.

The initial development began with a list of 2,871 items identified through existing literature. Content validity was achieved through review by an international expert panel of adaptive behavior and intellectual disability with culturally diverse backgrounds and narrowed the item pool down to 259 pilot items. Standardization was completed with approximately 1,300 children ages 4 to 21 without disabilities and 500 children with intellectual disability. Item Response Theory was then used to examine the DABS ability to reliability measure individual levels of adaptive behavior across varying ages as well as refine and reduce overall items (Arias, Verdugo, Navas, & Gómez, 2013).

The measure employs a face-to-face interview lasting approximately 60 minutes. The interview is guided by a professional who meets the following criterion: (a) has worked with people with intellectual disabilities or related developmental disabilities, (b) has previous assessment experience, and (c) has at least a Bachelor's degree. Respondents for the *DABS* can be adult family members, adult friends, educational professionals, direct care staff, and/or therapists. The single

respondent for the assessment must know the focus child well, have had the opportunity to observe the person over an extended period of time across one or more environments, and base their responses on direct observation. As special note, in subsequent versions of the DABS, the manual was revised to require two or more respondents to address reliability.

In answering the questions outlined in the instrument, respondents are instructed to "reflect on the person's typical performance in adapting to the environmental demands typical for the individual's age group and cultural/ethnic group" (Tassé et al., 2008, p. 7). The rating system is on a four-point scale (0 = Rarely or never performs the skill to 3 = Does it always or almost always independently – never or rarely needs reminders or assistance) with the addition of a "no score" category. Consequently, low scores on the DABS reflect limited adaptive behavior skills, while high scores reflect more evolved adaptive behavior skills. The no score category is to be used when a) the child has a physical impairment that impedes performance of the skill, b) lacks the opportunity due to cultural, gender, and/or geographic/regional factors, c) lacks opportunity due to environmental constraints, or d) the respondent has no direct knowledge of the individual's typical performance. By utilizing a no score category, the instrument accounts for contextual factors like socioeconomic status that may impact adaptive behavior.

Supports Intensity Scale for Children (Field Test Version 1.1) (SIS - Children).

The adult version of the Supports Intensity Scale (SIS) has been adopted by 15 states and provinces and been translated into seven different languages (Schalock et al., 2008; Weiss, Lunsky, Tassé, & Durbin, 2009). With the success of the adult SIS, requests for a similar tool tailored to children with intellectual disabilities were issued. As a result, a committee of experts from AAIDD gathered in 2006 to develop a children's version of the SIS (Appendix D). A field-test of the new instrument commenced in February 2009.

The Supports Intensity Scale for Children (SIS-Children) provides a mechanism for measuring the intensity of support needs for children with intellectual disabilities ages 5 to 16. The instrument is comprised of seven subscales with 61 items and a series of additional questions related to exceptional medical and behavioral circumstances experienced by the person of focus. The seven subscales were examined for inter-rater reliability in 2008 and their corresponding Pearson-product moment correlation coefficients are as follows: home living (r = .973); community and neighborhood (r = .855); school participation (r = .879); school learning (r = .938); health and safety (r = .900); social activities (r = .806); and advocacy activities (r = .809) (Thompson, Wehmeyer, Patton, Schalock, & Tassé, 2009). In addition to the seven subscales, there are 17 medical items and 14 behavioral items. These two domains are a consequence of the underlying assumption that children with exceptional medical conditions and behaviors will require increased levels of support beyond those identified in distinct life domains (Thompson et al., 2004).

The administrative methods of the SIS-Children are similar to those of the adult version. The instrument employs a semi-structured interview of two respondents who know the child well. Respondents can be parents, educational professionals, direct care staff, and even the focus child with a disability. It is essential that the interviewer collect information from two respondents when completing the instrument to gather reliable information. Respondents can be interviewed separately in which case the average score for each item is determined at the completion of both interviews, or respondents can be interviewed together reaching consensus on each item resulting in a complete measure of support needs. To qualify as an interviewer, a person must have at bachelor-level degree and have several years of experience working with individuals with intellectual disabilities or related developmental disabilities.

The Supports Intensity Scale for Children (Field Test Version 1.1) applies four different scales to rate responses. To rate exceptional medical needs and behavioral needs, the instrument uses the following rating scale: "0 = no support needed; 1 = some support needed (i.e., providing monitoring and/or occasional assistance); 2 = extensive support needed (i.e., providing regular assistance to manage the medical condition or behavior)" (Thompson et al., 2008). When examining support needs within the seven subscales, each response is measured across three dimensions: a) frequency, b) daily support time, and c) type of support. The items are to be completed without regard to current services and supports and with assistive technology in place if already in use. They are also to be completed by assessing the level of supports needed for the child to be successful in the activity. Success is to be judged against contemporary standards and typical functioning of peers without disabilities. In order to support participants, a visual representation of the rating scales were provided during the interviews.

Missing data.

The data included 0% to 2.0% missing observations on the scale items (0.3% missing data in total). Prior to analysis, missing data were imputed using Monte Carlo Markov Chain (MCMC) Bayesian approach of multiple imputation within SAS program under the PROC MI command. This data augmentation method allows one to generate unbiased parameter estimates from available data. MCMC has gained popularity as a procedure that provides greater flexibility when underlying distributions are unknown (McKnight, McKnight, Sidani, & Figueredo, 2007). Twenty imputed datasets were created via expectation-maximization (EM) algorithm as prior estimates for subsequent MCMC procedure as opposed to using random data (Enders, 2010). Maximum likelihood (ML) estimates from each of the imputed datasets were combined to make valid statistical inferences and a

final imputed dataset (Rubin, 1987). The descriptive statistics of the domain scores are presented in Table 11.

Table 11

Descriptive Statistics of Domain Scores from Imputed Data

Factor	**Domain**	***M***	***SE***	**LCL**	**UCL**
DABS					
CS	CsLang	1.127	0.107		
	CsRead	1.152	0.093	0.971	1.334
	CsMo	0.798	0.087	0.628	0.968
	CsSl	0.780	0.072	0.639	0.920
	CsTime	1.188	0.105	0.983	1.394
	CsMeas	1.276	0.088	1.104	1.448
	CsProb	1.972	0.093	1.790	2.154

Table 11 (cont.)

Descriptive Statistics of Domain Scores from Imputed Data

Factor	**Domain**	***M***	***SE***	**LCL**	**UCL**
DABS					
SS	SsInt	1.176	0.070		
	SsRes	1.433	0.069		
	SsEst	1.428	0.082	1.267	1.588
	SsW	0.620	0.078	0.466	0.774
	SsRule	1.159	0.100	0.964	1.354
	SsMan	1.307	0.065	1.179	1.434
	SsPr	1.394	0.073	1.251	1.537
PS	PsDl	1.675	0.084	1.511	1.840
	PsSafe	1.150	0.089	0.975	1.325
	PsHc	1.817	0.086	1.648	1.987
	PsRout	2.011	0.095	1.825	2.197
	PsTele	1.025	0.129	0.771	1.279

Table 11 (cont.)

Descriptive Statistics of Domain Scores from Imputed Data

Factor	Domain	*M*	*SE*	LCL	UCL
SIS-Children					
SN	HLA	2.018	0.081	1.859	2.177
	CNA	2.509	0.071		
	SPA	2.550	0.073	2.407	2.694
	SLA	3.063	0.057	2.952	3.175
	HSA	2.518	0.069	2.382	2.655
	SA	2.438	0.082	2.279	2.598
	AA	2.404	0.071	2.264	2.544

Note. CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs. *M* = mean, *SE* = standard error, LCL = 95% lower confidence limit, UCL = 95% upper confidence limit. The LCL and UCL are not available when all the items of a domain contain no missing observations.

Analytic procedures: structural equation modeling (SEM).

Structural equation modeling (SEM) is a combination of factor analysis and regression (Ullman, 2001). However, SEM goes beyond regression by providing and estimating statistical significance and strength of the relationships among latent constructs (i.e., structural model) (Mayhew, Hubbard, Finelli, 2009). Latent constructs are considered the knots of a theory's nomological net (Little & Card, 2008), and they cannot be measured directly but can be estimated by several observable variables. SEM allows for the representation and investigation of hypothetical constructs as identified through their manifest variables. One of the favorable features of SEM is that it accounts for measurement error by including an error term for each observed variable thereby allowing latent constructs to be error free. It also allows for one to evaluate how well the constructs

under review replicate the results from previous studies. Accordingly SEM has become a widely used statistical tool for assessing the predictive validity among independent but related constructs.

In the following study we will address Research Questions 3 and 4. Research Question 3 asks, "Do the DABS and SIS-Children measure two distinct constructs?" We will examine this question through the examination of the interrelationship among the constructs of adaptive behavior and support needs. Research Question 4 asks, "What is the unique contribution of adaptive behavior to the measurement of support needs in children with intellectual disability?" We will address this question through latent regression modeling (Roykov & Marcoulides, 2006).

In *Study 1* we validated the proposed theoretical structure of adaptive behavior and support needs as defined by the DABS and SIS-Children instruments through CFA. The DABS instrument is composed of nineteen subscales (or domains) representing three first-order constructs of Conceptual Skills (Cs), Social Skills (Ss), and Practical Skills (Ps) (see Table 12).

To identify adequate model fit, we had to make a few model modifications. With the DABS we allowed for the dual loading of Ss – following rules and obeying laws (SsRule) domain on the constructs of Ss and Cs, and for the residual covariances of Cs - time (CsTime) with Cs – language (CsLang) and Ss –interpersonal (SsInt); Cs – read (CsRead) with Ss – social problem solving (SsPr) and practical skills (Ps) – activities of daily living (PsDl); and Ss – wariness (SsW) with Ps – maintains safe environment/safety (PsSafe). These modifications yielded adequate model fit RMSEA = 0.097, SRMR = 0.065, CFI = 0.917, TLI = 0.901.

Table 12

DABS Common Factors and Domains

DABS Constructs and Subscales	Item Stem	Total Number of Items Ages 4-15
Conceptual Skills (Cs)		41
Language	CsLang	6
Reading/Writing	CsRead	12
Money Use	CsMo	4
Self-Direction	CsSlfd	5
Time	CsTime	8
Numbers/Measures	CsMeas	5
Problem Solving	CsProb	1
Social Skills (Ss)		39
Interpersonal	SsInt	8
Responsibility	SsRes	5
Self-Esteem	SsEst	2
Wariness	SsW	4
Follows Rules/Obeys Laws	SsRule	2
Manners	SsMan	11

Table 12 (cont.)

DABS Common Factors and Domains

DABS Constructs and Subscales	Item Stem	Total Number of Items Ages 4-15
Social Problem Solving	SsSpr	7
Practical Skills (Ps)		32
Activities of Daily Living	PsDl	20
Maintains Safe Environment/Safety	PsSafe	7
Healthcare	PsHc	3
Schedules/Routines	PsRout	1
Use of Telephone	PsTele	1

The SIS-Children is comprised of seven domains: home and life activities (HLA); community and neighborhood activities (CNA); school participation activities (SPA); school learning activities (SLA); health and safety activities (HSA); social activities (SA); and advocacy activities (AA). With the SIS-Children we allowed for the residual covariances between AA, SLA and between AA and SA. With these modifications to the theoretical model we reached adequate model fit RMSEA = 0.102, CFI = 0.975, and TLI = 0.954, and SRMR = 0.036.

Once the hypothesized CFA models were verified, they were combined into one model. We proceeded to examine the correlations between the DABS first-order constructs (Cs, Ss, Ps) and SIS-Children construct of support needs (SN) to explore the nature of their associations. Next, the DABS second-order construct of adaptive behavior (AB) was regressed onto the SIS-Children SN construct

to examine the contribution of adaptive behavior on support needs in children with intellectual disability (Research Question 4). A fixed-factor scaling method (Brown, 2006) was used to set the scales of the domain scores and the factors. This allowed factor loadings to be freely estimated while variance of each common factor was fixed to 1.0. The model parameters (μ, Λ, Ψ, Θ in Equation 1, factor correlations, factor regression coefficients) were obtained via maximum likelihood (ML). M*plus* version 6.11 (Muthén & Muthén, 2007) was used to perform all analyses.

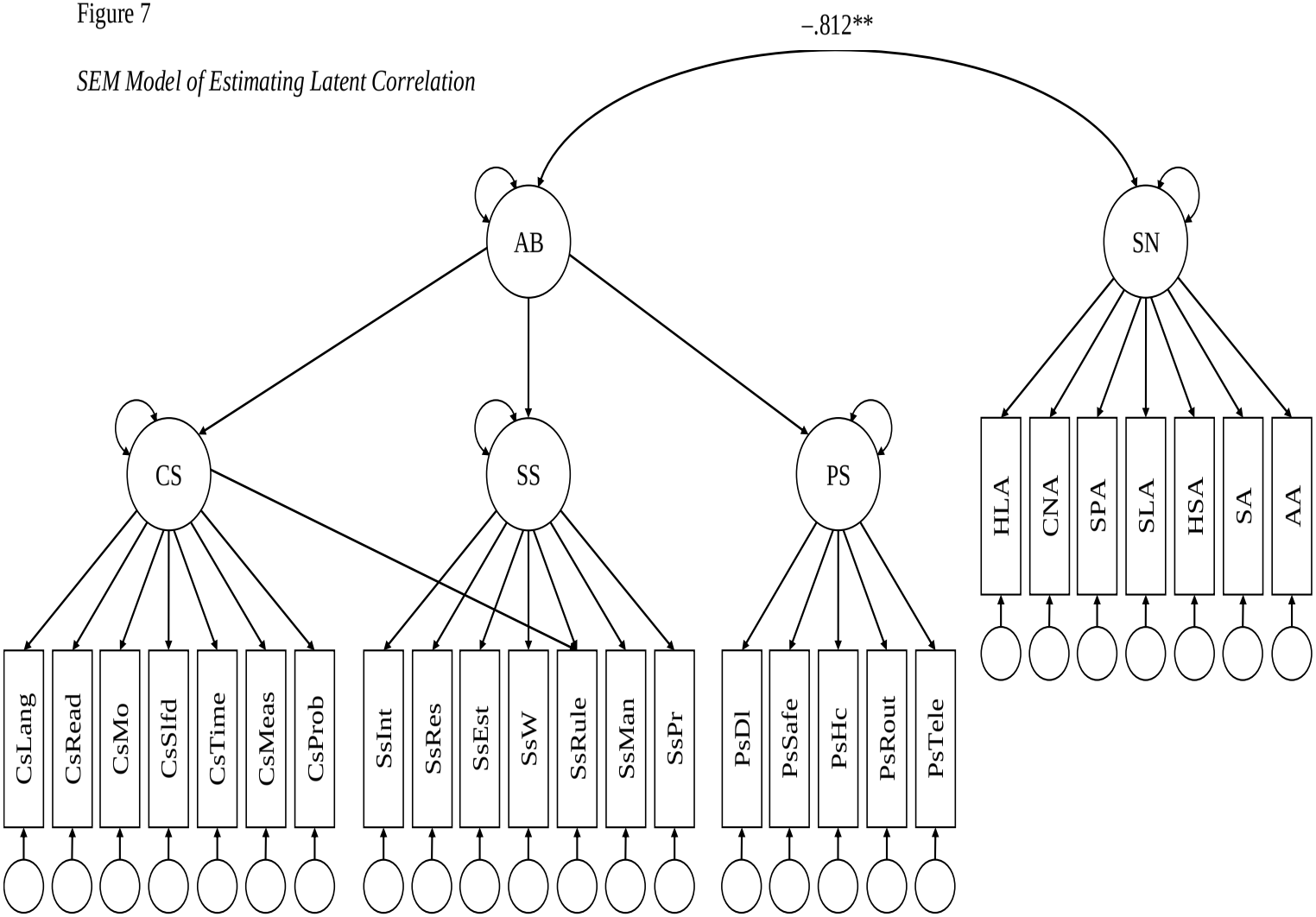
Results

The SEM model demonstrated adequate to mediocre model fit RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870 (see Figure 7). The correlation coefficient between the constructs of adaptive behavior and support needs is -0.812 (p <.01). This result is consistent with correlation studies performed with the adult version of the SIS and measures of adaptive behavior.

The unstandardized loadings, intercepts, residuals, R^2 values, along with standardized loadings, standard errors, and p-values are reported in Table 13. Table 14 reports the standardized and unstandardized estimates of the parameters added to the original model. As with our previous study (Study 1), we identified several domains as unstable indicators of their constructs. In the SIS-Children the SLA domain had a low loading (0.602) with standard error of 0.067. The standard error identifies how closely the model's parameter estimate approximates the true population value and thus the stability of the estimate. Here we find a moderate loading and a higher standard error as compared to the other domains. In the DABS, four domains are worth further review and appear to be unstable indicators of their constructs. Only 10.4% of the

Figure 7

SEM Model of Estimating Latent Correlation



Note. AB = adaptive behavior, CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs, HLA = home and life activities, CNA = community and neighborhood activities, SLA = school learning activities, HSA = health and safety activities, SA = social activities, AA = advocacy activities. The residual covariances of CsLang with CsTime and SsInt; CsRead with SsPr and PsDl; SsW with PsSafe; and AA with SLA and SA are also estimated but not shown in this figure for the sake of simplicity. χ^2 (287) = 554.552 (p < .001), RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870.

Table 13

Unstandardized and Standardized Parameter Estimates of Theoretical Models

	Unstandardized				Standardized	
Indicator	**Loadings**	**Intercept**	**Residual**	R^2	**Loading (*S.E.*)**	***p***
DABS						
CsLang	1.000	1.127	0.381	0.642	0.801 (0.039)	< .001
CsRead	0.994	1.152	0.187	0.783	0.885 (0.024)	< .001
CsMo	0.863	0.799	0.251	0.669	0.818 (0.036)	< .001
CsSlfd	0.705	0.778	0.181	0.652	0.807 (0.038)	< .001
CsTime	1.077	1.188	0.318	0.714	0.845 (0.032)	< .001
CsMeas	0.972	1.277	0.132	0.830	0.911 (0.020)	< .001
CsProb	0.363	1.970	0.772	0.104	0.323 (0.087)	< .001
CS	1.000	1.127	0.171	.750	0.866 (0.034)	< .001
SsInt	1.000	1.176	0.142	0.703	0.838 (0.035)	< .001
SsRes	1.004	1.433	0.149	0.694	0.833 (0.034)	< .001
SsEst	1.028	1.426	0.319	0.526	0.725 (0.051)	< .001
SsW	0.951	0.619	0.335	0.475	0.689 (0.054)	< .001
SsRule	0.345	1.162	0.234	0.762	0.201 (0.096)	.066
SsMan	1.032	1.306	0.070	0.836	0.914 (0.022)	< .001
SsSpr	0.978	1.395	0.204	0.611	0.782 (0.043)	< .001
SS	0.704	1.176	0.082	0.754	0.868 (0.036)	< .001

Table 13 (cont.)

Unstandardized and Standardized Parameter Estimates of Theoretical Models

	Unstandardized				Standardized	
Indicator	**Loadings**	**Intercept**	**Residual**	R^2	**Loading (*S.E.*)**	***p***
DABS						
PsDl	1.000	1.676	0.257	0.646	0.804 (0.039)	< .001
PsSafe	1.151	1.150	0.180	0.775	0.881 (0.028)	< .001
PsHc	0.992	1.818	0.286	0.617	0.785 (0.042)	< .001
PsRout	0.595	2.008	0.735	0.184	0.429 (0.085)	< .001
PsTele	1.096	1.027	1.108	0.337	0.580 (0.070)	< .001
PS	0.951	1.676	0.007	0.986	0.993 (0.022)	< .001
SIS-Children (SN)						
HLA	1.000	2.018	0.156	0.765	0.874 (0.029)	< .001
CAN	0.872	2.509	0.120	0.763	0.873 (0.029)	< .001
SPA	0.846	2.551	0.181	0.668	0.817 (0.038)	< .001
SLA	0.484	3.064	0.209	0.363	0.602 (0.067)	< .001
HAS	0.818	2.519	0.147	0.698	0.836 (0.035)	< .001
SA	0.823	2.438	0.327	0.513	0.716 (0.053)	< .001
AA	0.724	2.404	0.255	0.510	0.714 (0.053)	< .001

Note. S.E. = standard error

Table 14

Unstandardized and Standardized Estimates of Added Parameters

Indicator	**Unstandardized**	**Standardized (*S.E.*)**	***p***
SIS-Children			
AA with SLA	0.087	0.375 (0.084)	< .001
AA with SA	0.086	0.298 (0.089)	.001
DABS			
Cs By SsRule	0.854	0.711 (0.087)	< .001
PsSafe with SsW	0.168	0.685 (0.073)	< .001
CsTime with CsLang	0.152	0.436 (0.086)	< .001
PsDl with CsRead	0.093	0.425 (0.098)	< .001
SsInt with CsLang	0.089	0.384 (0.091)	< .001
SsSpr with CsRead	0.080	0.407 (0.097)	< .001

Note. S.E. = standard error

variance in the problem solving (CsProb) domain could be accounted for by the Cs construct. Its loading was low as 0.323 with relatively high standard error of 0.087. For the two domains of schedules and routines (PsRout) and use of telephones (PsTele) only 18.4% and 33.7% of their variance could be explained, respectively.

Table 15 provides the correlation coefficients between the DABS (first-order) constructs (Cs, Ss, Ps) and the SIS-Children support needs (SN) construct. All of the three DABS first-order constructs were significantly correlated with the SN construct ($p<.001$). For further analysis we

examined the correlation strength between the constructs however, it is difficult to find any published strength scales for interpretation. We utilized Munroe's (1993) correlation strength scales (low =.26 to.49, moderate =.50 to .69, high =.70 to .89, and very high =.90 to 1.00). Thus Cs correlated moderately with support needs (SN) (-.622) while Ss and Ps demonstrated a high correlation (-.725 and -.830). These results suggest that the greater adaptive behavior is associated with lower support needs. These negative significant correlations reflect trends in previous studies that examined the relationship between the constructs of adaptive behavior and support needs (Brown, Ouellette-Kuntz, Bielska, & Elliott, 2009; Claes, Van Hove, van Loon, Vandervelde, & Schalock, 2009; Harries, Guscia, Kirby, Nettelbeck, & Taplin, 2005). Construct validity of the DABS was also supported by the strong inter-correlations (.808 to .868) among the first-order constructs.

Table 15.

Correlation Coefficients for DABS and SIS-Children Factors

Factor	CS	SS	PS	SN
CS	1.000			
SS	.808***	1.000		
PS	.868***	.844***	1.000	
SN	–.622***	–.725***	–.830***	1.000

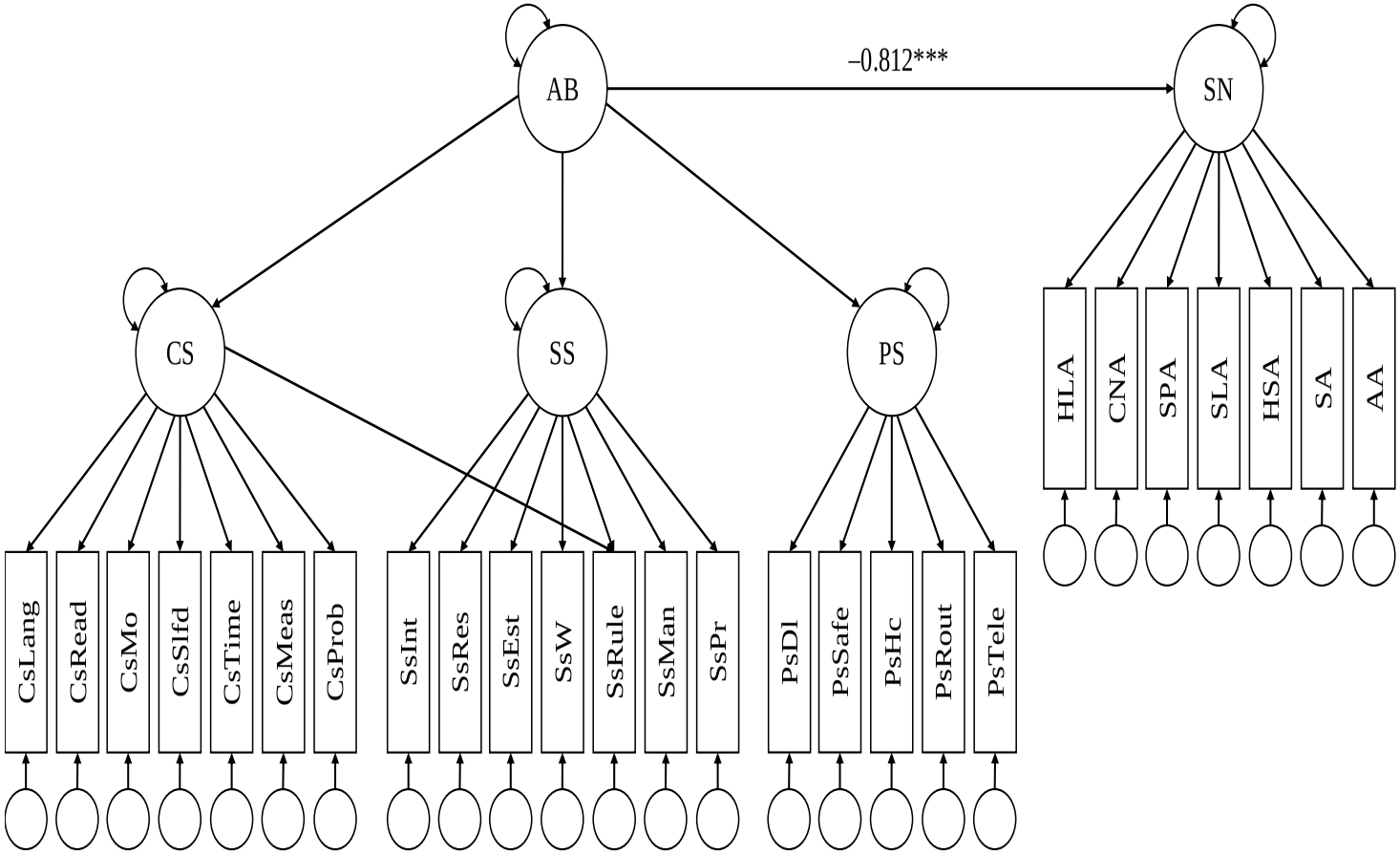
Note. CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs.
*p < .05, **p < .01, ***p < .001.

To answer Research Question 4 we performed a latent regression model which yielded acceptable to mediocre model fit RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870 (see Figure 8). The adequate fit identified by SRMR and the "close to acceptable fit" for CFI and TLI allows us to accept the specified model. In this model support needs (SN) construct considered the

dependent or endogenous variable and adaptive behavior (AB) construct considered the independent or exogenous variable. Theory predicted that support needs could be predicted by the person's adaptive behavior skills. The standardized regression coefficient was -0.812 (*SE* = 0.044, p-value <.001). Of note is that the model fit in the latent regression model is the same as that in the latent correlation model, that is because there is only one predictor, and the standard regression coefficient is equal to the correlation of this predictor in the outcome. In this model 65.9% of variability in support needs is due to adaptive behavior. Thus, 34.1% of the variability is unaccounted for. Our interpretation of the preceding evidence leads us to conclude that while it is clear that support needs is influenced by a person's level of adaptive skills, the two constructs are themselves distinct as there is a portion of variance that is unexplained by the DABS and subsequently adaptive behavior and we believe that unaccounted for variance lies within the unique construct of support needs.

Figure 8

SEM Model of Estimating Latent Regression



Note. AB = adaptive behavior, CS = conceptual skills, SS = social skills, PS = practical skills, SN = support needs, HLA = home and life activities, CNA = community and neighborhood activities, SLA = school learning activities, HSA = health and safety activities, SA = social activities, AA = advocacy activities. The residual covariances of CsLang with CsTime and SsInt; CsRead with SsPr and PsDl; SsW with PsSafe; and AA with SLA and SA are also estimated but not shown in this figure for the sake of simplicity.
χ^2 (287) = 554.552 (p < .001), RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870

Discussion.

Adaptive behavior and support needs represent two of the most influential constructs in the diagnosis and support of children with intellectual disability as defined by AAIDD. In the functionality approach to intellectual disability it is the interactive nature of human functioning dimensions (inclusive of adaptive skills), environmental context, and the availability and intensity of systems of supports that lead to enhanced personal outcomes (Buntinx & Schalock 2010; Luckasson & Schalock, 2012). However, two problems impeded the integration of research into practice regarding support needs and adaptive behavior: a) insufficient precision and scope of existing measures, and b) ambiguity regarding the theoretical overlap between the two constructs. It is logical to predict a close relationship between support needs and adaptive behavior, but what is unclear is the unique contribution of support needs when accounting for adaptive behavior. The purpose of this study was to address both these problems through the examining of the structural models of the DABS and SIS-Children. However, our results should be considered in light of several study limitations.

The most prominent limitation of this study rests with the influence of utilizing pre-published versions of the SIS-Children and DABS for research methodology and statistical analyses. Final considerations have not been made regarding the item level contributions on latent variables and scale reliability and validity. Results of currently underway analyses of the instruments may alter their item level composition and lead to a more parsimonious construct. Thus, there is a need for further research to investigate the relationship between the constructs of adaptive behavior and support needs using these valid published versions of the instruments.

Researchers applying methods of structural equation modeling strive to report acceptable model fit across all goodness-of-fit indices. However, in our analyses we cautiously accepted our

structural models despite the mediocre goodness-of-fit of some of our fit indices. Hu and Bentler (1998,1999) outline "acceptable" model fit thresholds for RMSEA and SRMR (> 0.08) and CFI and TLI (< 0.90). Guidelines suggest that RMSEA and SRMR values less than .05 indicate good fit and greater than .08 mediocre to poor fit. With regard to Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI), acceptable to close fit range from .90 to .99 while between .85 and .90 reflect mediocre fit and less than .85 reflects poor fit. In our SEM model we reported RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870, and in our latent regression model: RMSEA = 0.096, SRMR = 0.074, CFI = 0.885, TLI = 0.870 reflecting mediocre fit across some of our fit indices. We did not make the decision to accept these models haphazardly, but in light of recent controversies about the adequacy of model fit indices and their thresholds. With the advent of increased use of SEM there is also greater misspecification of theoretical models and reporting. Several authors have addressed concern over the interpretation of fit indices (Barrett, 2007; Haykuk, L., Cummings, G., Boadu, K., Pazderka-Robinson, & Boulianne, 2007). They argue that the plethora of fit indices allows for greater acceptance of misspecified models through selective model fit reporting. Conversely, there is concern that strict cutoffs for fit indices can be misleading. Several authors have concluded that these strict cut-off points for approximate fit indices are simply unreasonable (Barrett, 2007; Marsh, Hau, & Wen, 2004; Yuan, 2005). Thus, as we reported in our results our SRMR reported adequate fit and our CFI and TLI were approaching acceptable fit and taken together with the support of contemporary theory we believed that they provided enough support for accepting our proposed models. This approach also allowed us to further our purpose of examining the theoretical structure of the constructs of support needs and adaptive behavior through our thorough methodological and reporting procedures. As Hyduk et al. (2007) argues in the approach to theory refinement and pruning, "attentively constructed and theoretically meaning models that fail, ought to be carefully

discussed and published" (p. 845). This approach may however be considered as a limitation of the study.

Finally, our sample size was considered adequate but small in size and was comprised of children ages 4-15 who completed all of the items prior to the DABS scale being pruned to represent a reduced number of specific items for children ages 4 to 8, 9 to 15, and 16 to 21. Thus, we were able to examine all of the items for the children involved but only in two of the three age categories. Our sample also only represented three geographical regions. It would be advisable to further reliability and validity of the instruments to perform multiple group CFAs to test for measurement invariance across age, culture, gender, geographic region, and disability, and compare the latent parameters across these groups.

With the above limitations in mind, we proposed to further the theoretical landscape of support needs and adaptive behavior by examining the relationship between the two constructs using the pre-published versions of the SIS-Children and DABS. Based on our results using modified structural models allowing for the one double-loading and some residual covariances, we identified strong negative correlations between the DABS first-order constructs of conceptual, practical, and social skills and the support needs domain of the SIS-Children ranging from -0.622 to -0.830. Conceptual skills represented the weakest correlation with support needs index (-0.622). This result is interesting given that in Harries, Guscia, Kirby, Nettlebeck, & Taplin (2005) they found their strongest correlation (.94) between the SIS total support score and the ABS-RC:2 subscale of community self-sufficiency which is considered to represent conceptual skills (Harries, 2008). Conceptual skills represent language, reading and writing, money, time, and number concepts and it may be the case that these skills do not transfer as easily into the provision of supports as social and practical skills and thus has a weaker correlation. It may also be that these conceptual skills are more

strongly related to a different construct, namely intellectual functioning in children. Tassé et al., (2012) addressed the overlap of components of adaptive behavior and models of personal competence which often include academic or intellectual functioning skills. The authors proposed a possible scenario where the models of adaptive behavior and intelligence merge. In order to shed more light on the results, future research examining this potential merger of adaptive behavior and intelligence and the relationship between support needs would be beneficial.

Our correlational analyses provided construct validity for the DABS through the representation of intercorrelations among the first-order latent factors of conceptual, practical and social skills ranging from 0.808 to 0.868 (p-value <.001). We identified the same challenges, however, when looking at individual domains as we did in *Study 1* regarding the single manifest variable constructs of conceptual skills – problem solving (CsProb), practical skills – schedules and routines (PsRout), and practical skills – use of telephone (PsTele). These items all had low loadings with large standard errors and small coefficients. Given the small contribution these items make to their respective constructs, it may allow for a more parsimonious model by eliminating these items. Also within the DABS was the weak loading of social skills – follows rules/obeys laws (SsRule) on the second-order construct of social skills and the weak loading of conceptual skills – problem solving (CsProb) on the second-order construct of conceptual skills. In light of the double-loading of (SsRule) on conceptual skills (CS), perhaps this construct is more suited to fall within the conceptual skills framework. One could conceive that this may be the case if the items in SsRule reflected the understanding of symbolic representations which would fall more in line with symbolic interpretations of language and numbers. The low loading of conceptual skills problem solving can possibly be explained by the high-level of cognitive processing that is necessary to be successful; thus this loading may just represent an outlier of higher-order skills. Finally, school learning activities

(SLA) was the weakest indicator of support needs (0.602 (0.067)). School learning activities represents a new domain added to the SIS-Children that was not represented in the adult version of the SIS. The items address access to the overall concept of access to the general education curriculum. It is possible that this is a result of the overall lack of access students have to supports to access the general education curriculum (Wehmeyer, 2006) rather than the validity of the factor within support needs. It may also be the case that the primary respondents (predominantly parents and family members) are unfamiliar with the questions regarding the curricular access and thus had difficulty answering the questions. This suggests further research into the type of respondents that complete the instruments. Overall, iterative studies using item analytic techniques need to be performed by various researchers in order to explore these hypotheses for both the DABS and SIS-Children. Item level studies will allow for greater precision ensuring the construct of the instruments is not influenced by underrepresentation or item irrelevance (Ditterline, 2009).

In answering our primary questions as to the relationship between the constructs of support needs and adaptive behavior we identified a strong negative correlation between the two constructs (-0.812) indicating that the instruments do in fact measure related constructs. When we performed our regression analyses we observed that the DABS second-order factor of adaptive behavior significantly predicted the SIS-Children first-order factor of support needs accounting for 65.9% of the variance and leaving 34.9% of the variability unaccounted for. The unexplained variance can be interpreted as the difference between measuring support needs and adaptive behavior. Overall, we understand these findings to suggest that the DABS and thus, adaptive behavior is measuring something different albeit related to support needs as measured through the SIS-Children.

In summary, this study sought to examine the measurement and theoretical construct validity of the pre-published versions of the DABS (adaptive behavior) and the SIS-Children (support needs)

developed by AAIDD. We believe that our analyses support the validity of the two instruments as reported in Study 1 and confirmed by the intercorrelation of subscales for use with children ages 4 to 15 with intellectual disability and the validity of the constructs of support needs and adaptive behavior as related but distinct constructs. However our analyses provide several areas for measurement improvement that may improve future results based on the final published version of the two instruments. Accordingly, there is a great need for future research to investigate the relationship between the two constructs using the final published versions with children of different ages, cultures, genders, and geographical locations.

Chapter 4: Implications and Conclusions

The research described in this dissertation seeks to expand the theoretical underpinnings and understanding of the constructs of support needs and adaptive behavior through the simultaneous validation of two instruments developed by the American Association on Intellectual and Developmental Disabilities (AAIDD), the *Supports Intensity Scale for Children (Field Test Version 1.1) (SIS-Children)* and the *Diagnostic Adaptive Behavior Scale (DABS)* and latent construct validation. Reaching a greater understanding of these two constructs and supporting measurement validation and reliability has profound implications for the lives of children with intellectual disability and consequently those who love and care for them.

Implications

Diagnosis of Intellectual Disability.

There are seven international sources that are used to define disabilities and disorders. The most authoritative of these include: a) the American Association on Intellectual and Developmental Disabilities' (AAIDD) *Intellectual Disability: Definition, Classification and Systems of Supports (11th edition)* (Schalock et al., 2010), b) the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V*, (American Psychological Association, 2013), and c) the *International Classification of Diseases and Related Health Problems (10th edition)* (World Health Organization, 1992). The measurement of adaptive behavior is required for diagnosis of intellectual disability (and associated terms e.g. intellectual developmental disorder) in each of these sources. The supports paradigm is also enveloped within the conceptual model of intellectual disability that is shared between the three major sources classification and identification of intellectual disability. With diagnosis as the gateway to supports and services that extend through the lifespan, related constructs and sensitivity of assessments become paramount (McKenzie & Megson, 2012). For people who fall within the "mild"

intellectual disability range who may not qualify for services without a formal diagnosis and therefore not receive services despite their functional limitations, the reliability of assessment instruments becomes critical (Snell et al., 2009). Quality services lead to enhanced personal well-being for people with intellectual disability and with limited access to these supports and services (Larson, Ryan, Salmi, Smith, & Wuorio, (2012) estimated nationally 88,053 persons with intellectual and developmental disabilities were on formal state waiting lists for residential services) appropriate and efficient diagnosis becomes essential.

Diagnostic criteria and instruments used to diagnose intellectual disability have become increasingly relevant in the legal arena with the advent of *Atkins v. Virginia*. In 2002, the U. S. Supreme Court made a precedent-changing decision when they held that to execute Daryl Renard Atkins for his capital murder conviction would be a violation of the Eighth Amendment's restriction on "cruel and unusual punishment" (*Atkins v. Virginia,* 2002). This categorical exemption to the death penalty has led to greater analyses of diagnostic criteria for intellectual disability. It has become ever more challenging as states selectively apply different definitions of intellectual disability and procedures for proving mental capacity (Cheung, 2013). Even more challenging is developing instruments that are robust enough to reject feigned symptoms. Most instruments of adaptive behavior that are used in these cases require responses from someone who knows the individual well. This may be a conflict of interest as all those who know the individual well will have a vested interest in the outcome and have incentive to paint a picture of the defendant that would meet the criteria for an intellectual disability diagnosis (Doane, 2009). Diagnosis thus may become a matter of life or death for a person with intellectual disability.

Practice.

In the historical view of the measurement of adaptive behavior, Nihira (1999) explained that the initial purpose of adaptive skill assessment was not for diagnostic classification but for habilitation and prescriptive assessment. Contemporary uses of adaptive behavior assessments continue to move beyond diagnosis and include development of individualized programmatic and educational plans, evaluation of effective intervention programs, and identification of adaptive behavior patterns across varying disabilities (Bersani, 2008; Spreat, 2009). Bruinink, (1987) stated, "the construct of adaptive behavior provides a useful heuristic perspective for improving the design, selection, and implementation of intervention practices that emphasize those skills needed to enhance the adjustment of people with disabilities in current and future environments" (Bruininks, 1987, p. 84).The greatest challenge faced by practitioners, however, is the lack of validity and reliability within measures of adaptive behavior (Kamphaus, 1987; Pierangelo & Giuliani, 2009). With the multitude of practical applications for its use, the construct of adaptive behavior requires further research to reach reliability and validity of measurement.

Likewise, the construct of support needs, although in its theoretical infancy, has already gained momentum in application across disciplines including education, health care, and social services (Schalock, 2001). Much of this enthusiasm toward adoption rests on the paradigmatic shift in the concept of disability that suggests with the availability and application of appropriate supports and services, the impact of disability can be mitigated, or even eliminated, and overall general functioning improved (Switzky, 2006). Thompson et al. (2004) outlined both individual and systemic use of the adult version of the SIS in the user's manual. For individualized planning Thompson et al. (2002) devised a four-component support needs assessment, planning and monitoring process that a) identifies desired life experiences and goals, b) determines the pattern and intensity of support needs, c) develops an individualized plan and d) outlines ways to monitor progress. For systemic planning

they suggest uses for aggregate data such as a) population based projections and program planning, b) resource allocation, c) funding analyses, and d) programmatic evaluation. Of these areas, the subject of resource allocation has gained visible momentum in the U.S. According to the Human Services Resources Institute as of 2012, six states are utilizing the SIS to set individualized budgets and twelve states are working towards using the SIS to set individualized budgets (AAIDD, 2013). It is with the above implications that the research performed within this thesis and similar studies provides valuable information to the 2.5 to 4 million people in the United States with an intellectual disability (Fujiura, 2003; Larson, Lakin, Anderson, Lee, Lee, & Anderson, 2001;).

Construct Validation.

The value of scientific inquiry is the ability to refine and expand our understanding of well-established and postulated theories through empirical study (Leavitt, Mitchell, & Peterson, 2010). The process of theorizing as described by Bourgeous (1979) is a continuous process that should "weave back and forth between intuition and data-based theorizing and between induction and deduction" (as cited by Weick, 1989, p. 518). It is through this process that we examine the constructs of support needs and adaptive behavior.

Learning more about a theory may include the examination of its nomological net defined as a series of laws that produced the theoretical construct and relate it to other constructs (Cronbach & Meehl, 1955). There is great ambiguity in the relationship between adaptive behavior and support needs and as such, the instruments used to measure them. Thompson et al. (2004) outlined the differences between the measurement tools of adaptive behavior and the adult version of the SIS. He identified six areas in which they differ: construct measured, focus, uses, item stems, item responses, and additional items. Of particular interest is the construct difference in which adaptive behavior scales "measures the adaptive skills that a person has learned – this is a measure of achievement or

performance" while the SIS construct of support needs measures "the extraordinary support that a person needs in order to participate in the activities of daily life" (p. 11). To examine the constructs we performed two studies. Study 1 examined the construct validity of the DABS and the SIS for Children through confirmatory factor analysis while Study 2 utilized SEM latent regression modeling to identify the relationship between the constructs of adaptive behavior and support needs.

The results of the confirmatory factor analyses validated the factor structure supporting the theoretical tripartite model of adaptive behavior as a construct comprised of conceptual, practical, and social skills, and the seven domain structure of support needs while simultaneously providing preliminary support for the administration of the DABS and the SIS-Children as reliable assessment tools for children with intellectual disability. In our analyses we applied minor modifications to the theoretical models in the form of a single double-loading and some residual covariances to reach acceptable model fit. These results of the item loadings and modification indices underscored some potential domains that were unstable indicators of their higher order constructs. Within the DABS, the domain of problem solving, and the domains of routines and schedules, and use of telephone had the weakest loadings on their higher order constructs of conceptual skills and practical skills. It can be hypothesized that these domains offer the weakest loadings on their perspective constructs because they are comprised of single manifest variables. These items do not add significant contributions to their higher order constructs and thus may be considered for deletion on the final version of the DABS.

The results of the CFA for the SIS-Children provided support for the reliability of the seven domain structure of support needs with minor modifications. The factor loadings were all in the expected direction (positive), were significant, and produced small standard errors. The weakest indicator of support needs was the domain of school learning activities. Because this domain is

considered a newer domain in that it is not reflected in the adult version of the SIS on which the SIS-Children was modeled, there are varied reasons why the domain may not have fared as well as the others which do not diminish its inclusion in the scale. The first reason is that the domain represents a relatively new concept of grade level content of which respondents may not be as familiar, particularly if they are primary caregivers. Second, supports in this area are scarce. Some evidence for this comes from research on access to core curriculum standards in math, science, reading, and writing for students with intellectual disability (Wehmeyer, 2006). A concrete example is mathematical skills; for although functional mathematics skills are predominantly addressed in special education programs, teachers of special education may lack basic knowledge of the main components of core mathematics instruction outlined by the National Council of Teachers of Mathematics (Browder, Spooner, Ahlgrim-Delzell, Harris, & Wakeman, 2008; Maccini & Gagnon, 2002). It is clear from this evidence that more research needs to be done to understand the availability and understanding of supports for grade level content.

Study 2 examined the theoretical relationship between adaptive behavior and support needs. The results indicate that the DABS second-order factor of adaptive behavior significantly predicted the SIS-Children factor of support needs accounting for 65.9% of the factor variance. The strong correlation (-.812) indicates that the two instruments are indeed related, but our interpretation leads us to conclude that while they are related they still represent distinct constructs. The conclusion is not only determined by the data but also the implications of their meaning. As stated by Messick (1989), "validity is broadly defined as nothing less than an evaluative summary of both the evidence for and the actual – as well as potential – consequences of score interpretation and use (i.e. construct validity conceived comprehensively)" (p. 742). To examine the implications of the results we question the alternative; can the two instruments be used interchangeably? We would argue that they cannot be

used interchangeably because the proposed purpose and outcomes for the measurements are incongruent. The DABS is purely for diagnostic purposes to identify the cut-off range for intellectual disability while the SIS-Children identifies supports necessary for the child to be successful across environments. There is also the practical application of results from each instrument that makes them distinct. While one can use adaptive behavior measures to identify skills to build supports around, they would not be able to identify what those potential supports could and should be without the application of a supports needs instrument. It is more appropriate that the two types of instruments be used together to achieve a holistic view of the child; identify areas of adaptive behavior skill deficits and the support needs for mitigating those challenges. In light of these conclusions there is still a great need for independent research to continue to explore these constructs and their implications for practice to promote quality of life outcomes for children with intellectual disability.

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Appendix A

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

D · A · B · S

Diagnostic Adaptive Behavior Scale

Form 4-8 Years Old

Standardization Version

Please Do Not Copy / Do Not Cite / Do Not Distribute

November 2009

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American Association on Intellectual and Developmental Disabilities

AAIDD *ad hoc* Committee & Authors:

Marc J. Tassé, PhD (Co-chairman), The Ohio State University; Robert L. Schalock, PhD, Hastings College(Co-chairman); Giulia Balboni, PhD, Università della Valle d'Aosta – Italy; Hank Bersani, Jr., PhD., Western Oregon University; Sharon A. Borthwick-Duffy, PhD, University of California – Riverside; Julia Scherba de Valenzuela, PhD, University of New Mexico; Scott Spreat, EdD, Woodland Center for Challenging Behaviors; David M. Thissen, PhD, University of North Carolina at Chapel Hill; Keith F. Widaman, PhD, University of California – Davis; Dalun Zhang, PhD, Texas A&M University.

1

Appendix A (cont.)
Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

PERSON ASSESSED:

UNIQUE ID: _____
(to be completed by researcher)

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

- ☐ American Indian or Alaska Native[1]
- ☐ Asian[2]
- ☐ Black or African American[3]
- ☐ Hispanic or Latino[4]
- ☐ Native Hawaiian or Other Pacific Islander[5]
- ☐ White[6]
- ☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

School: _____ Current grade level: _____

Type of classroom placement:

- ☐ General education[1]
- ☐ Special education – less than half-day[2] (specify: _____)
- ☐ Special education – half-day or more[3] (specify: _____)
- ☐ Other[4] (specify: _____)
- ☐ Not applicable[2] (i.e., not attending school)

Highest grade level completed: _____ Obtained GED: Yes[1] ☐ No[2] ☐

Employment Status: Full-time[1] ☐ Part-time[2] ☐ Unemployed[3] ☐ Not applicable[4] ☐ (i.e., minor)

Verified Condition *(check all that apply)*:

- ☐ Mental retardation/intellectual disability[1]
- ☐ Visual impairment/blindness[2]
- ☐ Physical disability[3]
- ☐ Hearing impairment/deafness[4]
- ☐ Emotional disturbance/mental health problem[5]
- ☐ Developmental delay[6]
- ☐ Other health impairment/chronic health condition[7]
- ☐ Speech/language impairment[8]
- ☐ Learning disability[9]
- ☐ Autism spectrum disorder[10]
- ☐ Traumatic brain injury[11]
- ☐ Attention-deficit/hyperactivity disorder (ADHD)[12]
- ☐ Other[13] (specify: _____)

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

2

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

RESPONDENT 1:

Date Completed: _____/_____/_____
MM DD YYYY

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

- ☐ American Indian or Alaska Native[1]
- ☐ Asian[2]
- ☐ Black or African American[3]
- ☐ Hispanic or Latino[4]
- ☐ Native Hawaiian or Other Pacific Islander[5]
- ☐ White[6]
- ☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

Highest Education Level:

- ☐ Elementary school[1]
- ☐ Some high school[2]
- ☐ Completed high school/GED[3]
- ☐ Some college[4]
- ☐ Completed college[5]

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

Born in the United States: Yes[1] ☐ No[2] ☐ If "NO" – Total number of years living in the United States: _____

Relationship to Person Assessed:

- ☐ Mother[1]
- ☐ Father[2]
- ☐ Sibling[3]
- ☐ Grandparent[4]
- ☐ Aunt/Uncle[5]
- ☐ Caregiver[6]
- ☐ Teacher[7]
- ☐ School counselor[8]
- ☐ Peer/Friend[9]
- ☐ Other[10] (specify: _____)

Number of Years Respondent Has Known the Person Assessed: _____

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

INTERVIEWER:

First Name: _____ Middle Initial: _____ Last Name: _____

Date of Birth: _____/_____/_____ Gender: Female[1] ☐ Male[2] ☐
MM DD YYYY

Race and Ethnicity *(mark one or more)*:

☐ American Indian or Alaska Native[1]
☐ Asian[2]
☐ Black or African American[3]
☐ Hispanic or Latino[4]
☐ Native Hawaiian or Other Pacific Islander[5]
☐ White[6]
☐ Other[7] (specify: _____)

Employer/Affiliation: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: (_____)_____ E-mail: _____

Job Title (mark one):

☐ Psychologist[1]
☐ Psychometrician[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Teacher[5]
☐ Graduate student[6] (specify discipline: _____)
☐ Other[7] (specify: _____)

Highest Education Level Completed (mark one):

☐ Bachelor[1]
☐ Master[2]
☐ Doctoral[3]
☐ Other[4] (specify: _____)

Discipline/Major of Highest Level Completed:

☐ Psychology[1]
☐ Education[2]
☐ Social work[3]
☐ Counseling[4]
☐ Occupational therapy[5]
☐ Applied behavior analysis[6]
☐ Other[7] (specify: _____)

Professional Licensure/Certification:

☐ School psychologist[1]
☐ Psychologist[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Occupational therapist[5]
☐ Board certified behavior analyst[6]
☐ Teacher[7]
☐ Other[8] (specify: _____)

Number of Years of Professional Experience: _____

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

CONCEPTUAL SKILLS

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Language					
1	Answers questions with appropriate amount of detail.	0	1	2	3	NS
2	Asks appropriate questions (e.g., "What's that?").	0	1	2	3	NS
3	Engages in conversations with others on topics of shared interest.	0	1	2	3	NS
4	Follows verbal instructions.	0	1	2	3	NS
5	Follows simple one-step directions	0	1	2	3	NS
6	Follows two-step directions (e.g., Get your book and give it to John).	0	1	2	3	NS
7	Gives accurate directions or instructions to help others.	0	1	2	3	NS
8	Communicates ideas through oral, sign, or written language (including assistive technology).	0	1	2	3	NS
9	Communicates complex ideas through oral, sign, or written language (including assistive technology).	0	1	2	3	NS
10	Repeats a story.	0	1	2	3	NS
11	Answers "yes" or "no" when asked a simple question.	0	1	2	3	NS
12	Says at least 20 recognizable words.	0	1	2	3	NS
13	Says at least 100 recognizable words.	0	1	2	3	NS
14	Uses full sentences with generally correct grammar.	0	1	2	3	NS
15	Uses three- or four-word sentences.	0	1	2	3	NS
16	Uses prepositions in a phrase (e.g., in, on, behind, etc.).	0	1	2	3	NS
17	Uses conjunctions in a phrase (e.g., "and," "or").	0	1	2	3	NS
18	Uses possessives (e.g., mine, his, hers).	0	1	2	3	NS
19	Uses verb tenses (e.g., past, present, future).	0	1	2	3	NS
20	Uses pronouns in phrases or sentences (e.g., "he/she," "her/him").	0	1	2	3	NS
21	Uses regular plural nouns (e.g., "books," "cars").	0	1	2	3	NS
22	Uses sentences that contain negatives.	0	1	2	3	NS
23	Relates experiences in narrative form (i.e., tells stories).	0	1	2	3	NS
24	Communicates "yes," "no," and "I want."	0	1	2	3	NS
25	Expresses ideas in more than one way to meet needs of demand/context.	0	1	2	3	NS
26	Indicates preference, vocally or by gesture, when offered a choice (e.g., "Would you like to go to the store or watch TV?").	0	1	2	3	NS
27	Uses factual information to defend a position during a discussion.	0	1	2	3	NS

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

CONCEPTUAL SKILLS (CONTINUED)

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Reading and Writing						
28	Arranges words alphabetically.	0	1	2	3	NS
30	Reads newspapers, books, or other materials.	0	1	2	3	NS
32	Writes first name, copying from an example.	0	1	2	3	NS
33	Writes at least 10 words from memory.	0	1	2	3	NS
34	Writes at least 20 words from memory.	0	1	2	3	NS
35	Writes first and last name correctly without an example.	0	1	2	3	NS
36	Writes short notes or messages.	0	1	2	3	NS
37	Follows written classroom or work schedule.	0	1	2	3	NS
38	Follows written instructions for classroom or work related task. .	0	1	2	3	NS
39	Reads at least 10 words.	0	1	2	3	NS
40	Reads at least 25 words.	0	1	2	3	NS
45	Recognizes all letters of the alphabet. (Letters may be out of sequence.)	0	1	2	3	NS
Self-direction						
65	Weighs possible consequences before making a decision.	0	1	2	3	NS
66	States complete home address (including zip code).	0	1	2	3	NS
68	Adapts activities to coincide with the current season or weather conditions.	0	1	2	3	NS
70	Takes appropriate action when an item is broken or malfunctioning (e.g., repair, discard, seek assistance).	0	1	2	3	NS
Time						
71	Refers to things he/she has done or will do within a specified time, such as last week or next month.	0	1	2	3	NS
73	Shows an understanding of the difference between day-week, minute-hour, month-year, etc.	0	1	2	3	NS
77	States correct day, month, and year of birth.	0	1	2	3	NS
78	Refers correctly to "morning," "afternoon," "evening," and "night."	0	1	2	3	NS
79	Locates important dates on a calendar (e.g., birthdays or holidays).	0	1	2	3	NS
81	Demonstrates knowledge of days of the week, in the correct order.	0	1	2	3	NS
82	Demonstrates knowledge of months of the year, in the correct order.	0	1	2	3	NS
Numbers/Measures						
85	Counts at least 10 objects, one by one.	0	1	2	3	NS
87	Makes accurate comparisons between two objects of different sizes (e.g., more/less, longer/shorter, etc.).	0	1	2	3	NS

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

CONCEPTUAL SKILLS (CONTINUED)

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Problem-solving						
93	Finds more than one solution when confronted with a problem/conflict.	0	1	2	3	NS
94	Can identify when there is a problem.	0	1	2	3	NS

Comments:

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

Social Skills

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Interpersonal					
1	Acknowledges familiar people (e.g., smiles, nods, etc.).	0	1	2	3	NS
2	Answers when asked a question.	0	1	2	3	NS
3	Carries on a conversation with others.	0	1	2	3	NS
4	Greets people he or she knows well by name (e.g., "Hello John").	0	1	2	3	NS
5	Engages in conversations on topics of interest to others.	0	1	2	3	NS
6	Discusses differences of opinion.	0	1	2	3	NS
7	Reaches mutual agreement with others when in disagreement.	0	1	2	3	NS
8	Responds appropriately when given a compliment.	0	1	2	3	NS
9	Responds appropriately when introduced to new people.	0	1	2	3	NS
15	Seeks friendships with others of appropriate age group.	0	1	2	3	NS
16	Starts a conversation.	0	1	2	3	NS
17	Ends a conversation.	0	1	2	3	NS
18	Introduces self to others.	0	1	2	3	NS
19	Identifies relationships between people when asked (e.g., "That's Fred's mother," "He's John's brother," etc.).	0	1	2	3	NS
20	Contributes as a constructive member of his/her social group.	0	1	2	3	NS
21	Places reasonable demands on friends (e.g., does not become upset when a friend goes out with others and doesn't invite him/her).	0	1	2	3	NS
22	Stays on the topic in group conversations.	0	1	2	3	NS
23	Recognizes/anticipates the likely consequences of another person's plan/proposal.	0	1	2	3	NS
26	Asks for help when needed.	0	1	2	3	NS

	Responsibility					
27	Actions show self-control.	0	1	2	3	NS
28	Respects other people's property and rights.	0	1	2	3	NS
29	Accepts the consequences for his/her actions.	0	1	2	3	NS
30	Tries to help others when a legitimate request is made.	0	1	2	3	NS
31	Avoids saying things or asking questions that embarrass or hurt others	0	1	2	3	NS
32	Controls feelings when he/she doesn't get own way.	0	1	2	3	NS
33	Expresses feelings appropriately (e.g., in a calm voice).	0	1	2	3	NS
34	Offers help before needing to be asked.	0	1	2	3	NS

8

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

Social Skills (continued)

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

35	Modifies his/her behavior in accordance to social situation (e.g., quiets down when entering a library, auditorium, etc.).	0	1	2	3	NS
38	Acts upon instructions given.	0	1	2	3	NS
	Self-esteem					
39	Accurately evaluates own abilities (i.e., doesn't over/under estimate).	0	1	2	3	NS
40	Accepts compliments	0	1	2	3	NS
	Follows Rules/Obeys Laws					
59	Follows rules and regulations when playing games (e.g., board games, sports, etc.).	0	1	2	3	NS
	Manners					
62	Responds to hints or indirect social cues in conversation. (e.g., yawning, looking at their watch, etc.).	0	1	2	3	NS
63	Says "Thank you," "I'm sorry," "Excuse me," etc. when appropriate.	0	1	2	3	NS
64	Says "hello" or "hi" and "good-bye" or "bye" when coming and going.	0	1	2	3	NS
65	Shows concern for the feelings of others.	0	1	2	3	NS
66	Stands a comfortable distance from others during conversations, as appropriate for culture.	0	1	2	3	NS
67	Uses appropriate table manners.	0	1	2	3	NS
68	Waits for appropriate moment in a conversation to speak.	0	1	2	3	NS
69	Enters an activity area or show without disrupting others.	0	1	2	3	NS
70	Waits turn when wanting to use an object in use by someone else.	0	1	2	3	NS
72	Moves out of the way of someone needing to get by.	0	1	2	3	NS
73	Shows emotions/feelings appropriately.	0	1	2	3	NS
76	Recognizes different emotions expressed by others.	0	1	2	3	NS
	Social Problem-solving					
77	Makes compromises to resolve conflicts.	0	1	2	3	NS
78	Adjusts behavior to different situational demands.	0	1	2	3	NS
79	Appropriately responds to social cues from others used to express their emotional state (e.g., anger, difference of opinion, etc.).	0	1	2	3	NS
82	Identifies problems when they occur.	0	1	2	3	NS
83	Responds appropriately to humor.	0	1	2	3	NS

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

PRACTICAL SKILLS

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Activities of Daily Living					
1	Completes all steps of brushing teeth.	0	1	2	3	NS
2	Adjusts the water flow at the faucet.	0	1	2	3	NS
3	Adjusts the water temperature at the faucet.	0	1	2	3	NS
4	Washes face.	0	1	2	3	NS
5	Bathes completely.	0	1	2	3	NS
6	Cares for toileting needs.	0	1	2	3	NS
7	Controls bowels and bladder during the day.	0	1	2	3	NS
8	Uses the restroom.	0	1	2	3	NS
9	Controls bladder at night time.	0	1	2	3	NS
10	Fastens/straightens clothing after using the restroom.	0	1	2	3	NS
11	Uses the restroom in familiar settings.	0	1	2	3	NS
12	Uses the restroom in unfamiliar settings.	0	1	2	3	NS
13	Puts on shoes.	0	1	2	3	NS
14	Adjusts shirt/sweater if in-side is out.	0	1	2	3	NS
15	Puts on clothing.	0	1	2	3	NS
16	Dresses appropriately depending on occasion.	0	1	2	3	NS
17	Selects clothing that is appropriate for weather/season.	0	1	2	3	NS
19	Takes bites of food that are of appropriate size.	0	1	2	3	NS
20	Chooses appropriate utensils.	0	1	2	3	NS
21	Drinks from cup or glass with no spilling.	0	1	2	3	NS
22	Eats without making a mess.	0	1	2	3	NS

	Maintains Safe Environment / Safety					
47	Tests hot liquids/foods before drinking/eating.	0	1	2	3	NS
60	Discriminates between potentially dangerous items from safe ones.	0	1	2	3	NS
61	Uses a seat belt when in a car.	0	1	2	3	NS
65	Shows safety awareness when crossing streets (e.g., checks for traffic before crossing streets, driveways, and parking lots).	0	1	2	3	NS
66	Stays with group during group activities without wandering away.	0	1	2	3	NS

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

PRACTICAL SKILLS (CONTINUED)

Rating System:

"0" No – **rarely or never** – does it.
"1" Yes – does it **with reminders or assistance** – but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Healthcare						
67	Communicates to others when not feeling well.	**0**	**1**	**2**	**3**	**NS**
73	Regulates body temperature by finding shade when hot or going indoors when cold.	**0**	**1**	**2**	**3**	**NS**
Schedules/Routines						
78	Follows a daily schedule.	**0**	**1**	**2**	**3**	**NS**

Comments:

Appendix A (cont.)

Diagnostic Adaptive Behavior Scale Form 4-8 Years Old

Please return all completed and unused DABS protocols to:

Marc J. Tassé, Ph.D.
DABS Project
Nisonger Center
The Ohio State University
1581 Dodd Dr./McCampbell Hall
Columbus, OH 43210

Appendix B

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

D · A · B · S

DIAGNOSTIC ADAPTIVE BEHAVIOR SCALE

Form 9-15 Years Old

STANDARDIZATION VERSION

PLEASE DO NOT COPY / DO NOT CITE / DO NOT DISTRIBUTE

NOVEMBER 2009

aaidd
American Association on Intellectual and Developmental Disabilities

AAIDD *ad hoc* Committee & Authors:

Marc J. Tassé, PhD (Co-chairman), The Ohio State University; Robert L. Schalock, PhD, Hastings College(Co-chairman); Giulia Balboni, PhD, Università della Valle d'Aosta – Italy; Hank Bersani, Jr., PhD., Western Oregon University; Sharon A. Borthwick-Duffy, PhD, University of California – Riverside; Julia Scherba de Valenzuela, PhD, University of New Mexico; Scott Spreat, EdD, Woodland Center for Challenging Behaviors; David M. Thissen, PhD, University of North Carolina at Chapel Hill; Keith F. Widaman, PhD, University of California – Davis; Dalun Zhang, PhD, Texas A&M University.

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

PERSON ASSESSED:

UNIQUE ID: _____
(to be completed by researcher)

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

☐ American Indian or Alaska Native[1]
☐ Asian[2]
☐ Black or African American[3]
☐ Hispanic or Latino[4]
☐ Native Hawaiian or Other Pacific Islander[5]
☐ White[6]
☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

School: _____ Current grade level: _____

Type of classroom placement:

☐ General education[1]
☐ Special education – less than half-day[2] (specify: _____)
☐ Special education – half-day or more[3] (specify: _____)
☐ Other[4] (specify: _____)
☐ Not applicable[2] (i.e., not attending school)

Highest grade level completed: _____ Obtained GED: Yes[1] ☐ No[2] ☐

Employment Status: Full-time[1] ☐ Part-time[2] ☐ Unemployed[3] ☐ Not applicable[4] ☐ (i.e., minor)

Verified Condition *(check all that apply)*:

☐ Mental retardation/intellectual disability[1]
☐ Visual impairment/blindness[2]
☐ Physical disability[3]
☐ Hearing impairment/deafness[4]
☐ Emotional disturbance/mental health problem[5]
☐ Developmental delay[6]
☐ Other health impairment/chronic health condition[7]
☐ Speech/language impairment[8]
☐ Learning disability[9]
☐ Autism spectrum disorder[10]
☐ Traumatic brain injury[11]
☐ Attention-deficit/hyperactivity disorder (ADHD)[12]
☐ Other[13] (specify: _____)

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

RESPONDENT 1:

Date Completed: _____/_____/_____
MM DD YYYY

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

- ☐ American Indian or Alaska Native[1]
- ☐ Asian[2]
- ☐ Black or African American[3]
- ☐ Hispanic or Latino[4]
- ☐ Native Hawaiian or Other Pacific Islander[5]
- ☐ White[6]
- ☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

Highest Education Level:

- ☐ Elementary school[1]
- ☐ Some high school[2]
- ☐ Completed high school/GED[3]
- ☐ Some college[4]
- ☐ Completed college[5]

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

Born in the United States: Yes[1] ☐ No[2] ☐ If "NO" – Total number of years living in the United States: _____

Relationship to Person Assessed:

- ☐ Mother[1]
- ☐ Father[2]
- ☐ Sibling[3]
- ☐ Grandparent[4]
- ☐ Aunt/Uncle[5]
- ☐ Caregiver[6]
- ☐ Teacher[7]
- ☐ School counselor[8]
- ☐ Peer/Friend[9]
- ☐ Other[10] (specify: _____)

Number of Years Respondent Has Known the Person Assessed: _____

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

INTERVIEWER:

First Name: _____ Middle Initial: _____ Last Name: _____

Date of Birth: _____/_____/_____ Gender: Female[1] ☐ Male[2] ☐
MM DD YYYY

Race and Ethnicity *(mark one or more)*:

☐ American Indian or Alaska Native[1]
☐ Asian[2]
☐ Black or African American[3]
☐ Hispanic or Latino[4]
☐ Native Hawaiian or Other Pacific Islander[5]
☐ White[6]
☐ Other[7] (specify: _____)

Employer/Affiliation: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: (_____)_____ E-mail: _____

Job Title (mark one):

☐ Psychologist[1]
☐ Psychometrician[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Teacher[5]
☐ Graduate student[6] (specify discipline: _____)
☐ Other[7] (specify: _____)

Highest Education Level Completed (mark one):

☐ Bachelor[1]
☐ Master[2]
☐ Doctoral[3]
☐ Other[4] (specify: _____)

Discipline/Major of Highest Level Completed:

☐ Psychology[1]
☐ Education[2]
☐ Social work[3]
☐ Counseling[4]
☐ Occupational therapy[5]
☐ Applied behavior analysis[6]
☐ Other[7] (specify: _____)

Professional Licensure/Certification:

☐ School psychologist[1]
☐ Psychologist[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Occupational therapist[5]
☐ Board certified behavior analyst[6]
☐ Teacher[7]
☐ Other[8] (specify: _____)

Number of Years of Professional Experience: _____

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

CONCEPTUAL SKILLS

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Language					
1	Answers questions with appropriate amount of detail.	0	1	2	3	NS
2	Asks appropriate questions (e.g., "What's that?").	0	1	2	3	NS
3	Engages in conversations with others on topics of shared interest.	0	1	2	3	NS
4	Follows verbal instructions.	0	1	2	3	NS
5	Follows simple one-step directions	0	1	2	3	NS
6	Follows two-step directions (e.g., Get your book and give it to John).	0	1	2	3	NS
7	Gives accurate directions or instructions to help others.	0	1	2	3	NS
8	Communicates ideas through oral, sign, or written language (including assistive technology).	0	1	2	3	NS
9	Communicates complex ideas through oral, sign, or written language (including assistive technology).	0	1	2	3	NS
10	Repeats a story.	0	1	2	3	NS
11	Answers "yes" or "no" when asked a simple question.	0	1	2	3	NS
12	Says at least 20 recognizable words.	0	1	2	3	NS
13	Says at least 100 recognizable words.	0	1	2	3	NS
14	Uses full sentences with generally correct grammar.	0	1	2	3	NS
15	Uses three- or four-word sentences.	0	1	2	3	NS
16	Uses prepositions in a phrase (e.g., in, on, behind, etc.).	0	1	2	3	NS
17	Uses conjunctions in a phrase (e.g., "and," "or").	0	1	2	3	NS
18	Uses possessives (e.g., mine, his, hers).	0	1	2	3	NS
19	Uses verb tenses (e.g., past, present, future).	0	1	2	3	NS
20	Uses pronouns in phrases or sentences (e.g., "he/she," "her/him").	0	1	2	3	NS
21	Uses regular plural nouns (e.g., "books," "cars").	0	1	2	3	NS
22	Uses sentences that contain negatives.	0	1	2	3	NS
23	Relates experiences in narrative form (i.e., tells stories).	0	1	2	3	NS
24	Communicates "yes," "no," and "I want."	0	1	2	3	NS
25	Expresses ideas in more than one way to meet needs of demand/context.	0	1	2	3	NS
26	Indicates preference, vocally or by gesture, when offered a choice (e.g., "Would you like to go to the store or watch TV?").	0	1	2	3	NS
27	Uses factual information to defend a position during a discussion.	0	1	2	3	NS

Conceptual Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Reading and Writing					
28	Arranges words alphabetically.	0	1	2	3	NS
30	Reads newspapers, books, or other materials.	0	1	2	3	NS
31	Looks up needed information in dictionary, encyclopedia, or computer.	0	1	2	3	NS
32	Writes first name, copying from an example.	0	1	2	3	NS
33	Writes at least 10 words from memory.	0	1	2	3	NS
34	Writes at least 20 words from memory.	0	1	2	3	NS
35	Writes first and last name correctly without an example.	0	1	2	3	NS
36	Writes short notes or messages.	0	1	2	3	NS
37	Follows written classroom or work schedule.	0	1	2	3	NS
38	Follows written instructions for classroom or work related task. .	0	1	2	3	NS
39	Reads at least 10 words.	0	1	2	3	NS
40	Reads at least 25 words.	0	1	2	3	NS
44	Reads the time printed on a schedule.	0	1	2	3	NS
45	Recognizes all letters of the alphabet. (Letters may be out of sequence.)	0	1	2	3	NS
46	Makes a list (e.g., things to do, things to buy).	0	1	2	3	NS
47	Writes complex sentences such as in letters, E-mails, or other notes.	0	1	2	3	NS

	Money Use					
48	Can tell the value of monetary bills of different denominations.	0	1	2	3	NS
49	Checks for correct change after buying an item.	0	1	2	3	NS
50	Gives clerk the correct amount of money to buy an item.	0	1	2	3	NS
51	Makes purchases after comparing similar products to determine the better value.	0	1	2	3	NS
54	Selects a snack or meal which he/she has sufficient money to buy.	0	1	2	3	NS
55	Saves money to buy something special (e.g., a birthday present, game, or special clothes).	0	1	2	3	NS
56	Plans how to spend his/her money.	0	1	2	3	NS
57	States value (in cents) of penny, nickel, dime, and quarter.	0	1	2	3	NS

	Self-direction					
59	Makes plans to complete projects in logical steps.	0	1	2	3	NS
60	Plans ahead for leisure, vacation, or recreation	0	1	2	3	NS
62	Makes own choices among activities, events, or circumstances.	0	1	2	3	NS
64	Understands concepts of personal rights (e.g., human rights, respect & dignity).	0	1	2	3	NS

Appendix B (cont.)
Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

Conceptual Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

65	Weighs possible consequences before making a decision.	0	1	2	3	NS
66	States complete home address (including zip code).	0	1	2	3	NS
68	Adapts activities to coincide with the current season or weather conditions.	0	1	2	3	NS
69	Goes out during the day.	0	1	2	3	NS
70	Takes appropriate action when an item is broken or malfunctioning (e.g., repair, discard, seek assistance).	0	1	2	3	NS
Time						
71	Refers to things he/she has done or will do within a specified time, such as last week or next month.	0	1	2	3	NS
72	Tells time using an analog clock or watch correctly to the minute.	0	1	2	3	NS
73	Shows an understanding of the difference between day-week, minute-hour, month-year, etc.	0	1	2	3	NS
74	Shows an understanding of time equivalents (e.g., "9:15" is the same as "quarter past nine").	0	1	2	3	NS
77	States correct day, month, and year of birth.	0	1	2	3	NS
78	Refers correctly to "morning," "afternoon," "evening," and "night."	0	1	2	3	NS
79	Locates important dates on a calendar (e.g., birthdays or holidays).	0	1	2	3	NS
80	Uses a clock or other timepiece to determine when it is time to do something (e.g., go to school/work, go home).	0	1	2	3	NS
81	Demonstrates knowledge of days of the week, in the correct order.	0	1	2	3	NS
82	Demonstrates knowledge of months of the year, in the correct order.	0	1	2	3	NS
83	Associates time on clock or other timepiece with various actions and events	0	1	2	3	NS
Numbers/Measures						
85	Counts at least 10 objects, one by one.	0	1	2	3	NS
86	Uses fractions like ½, ⅓, and ¼ during activities (e.g., using a recipe, sharing something, splitting a reward).	0	1	2	3	NS
87	Makes accurate comparisons between two objects of different sizes (e.g., more/less, longer/shorter, etc.).	0	1	2	3	NS
88	Uses mathematical operatives (e.g., +, –, X, /) in activities (e.g., adding numbers, balancing checkbook, etc.).	0	1	2	3	NS
89	Using numerical symbols (e.g., $, =, %, "decimal point," etc.).	0	1	2	3	NS
90	Demonstrates understanding of temperature in relation to weather (e.g., that 100 degrees F. is very warm, 20 degrees F. is cold).	0	1	2	3	NS
91	Demonstrates understanding of weight (e.g., own body weight, weighing of produce).	0	1	2	3	NS

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

CONCEPTUAL SKILLS (CONTINUED)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

92	Uses ruler or tape measure to measure length.	0	1	2	3	NS

Problem-solving

93	Finds more than one solution when confronted with a problem/conflict.	0	1	2	3	NS
94	Can identify when there is a problem.	0	1	2	3	NS

Comments:

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

Social Skills

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Interpersonal					
1	Acknowledges familiar people (e.g., smiles, nods, etc.).	0	1	2	3	NS
2	Answers when asked a question.	0	1	2	3	NS
3	Carries on a conversation with others.	0	1	2	3	NS
4	Greets people he or she knows well by name (e.g., "Hello John").	0	1	2	3	NS
5	Engages in conversations on topics of interest to others.	0	1	2	3	NS
6	Discusses differences of opinion.	0	1	2	3	NS
7	Reaches mutual agreement with others when in disagreement.	0	1	2	3	NS
8	Responds appropriately when given a compliment.	0	1	2	3	NS
9	Responds appropriately when introduced to new people.	0	1	2	3	NS
10	Arranges events or activities with a group of friends.	0	1	2	3	NS
11	Accepts an invitation to attend an event or activity.	0	1	2	3	NS
12	Dresses appropriately for special occasions (e.g., job interview, wedding, etc.)	0	1	2	3	NS
14	Makes plans with friends to go out (e.g., movies, sporting event, etc.).	0	1	2	3	NS
15	Seeks friendships with others of appropriate age group.	0	1	2	3	NS
16	Starts a conversation.	0	1	2	3	NS
17	Ends a conversation.	0	1	2	3	NS
18	Introduces self to others.	0	1	2	3	NS
19	Identifies relationships between people when asked (e.g., "That's Fred's mother," "He's John's brother," etc.).	0	1	2	3	NS
20	Contributes as a constructive member of his/her social group.	0	1	2	3	NS
21	Places reasonable demands on friends (e.g., does not become upset when a friend goes out with others and doesn't invite him/her).	0	1	2	3	NS
22	Stays on the topic in group conversations.	0	1	2	3	NS
23	Recognizes/anticipates the likely consequences of another person's plan/proposal.	0	1	2	3	NS
24	Goes places with friends.	0	1	2	3	NS
26	Asks for help when needed.	0	1	2	3	NS

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

Social Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Responsibility						
27	Actions show self-control.	0	1	2	3	NS
28	Respects other people's property and rights.	0	1	2	3	NS
29	Accepts the consequences for his/her actions.	0	1	2	3	NS
30	Tries to help others when a legitimate request is made.	0	1	2	3	NS
31	Avoids saying things or asking questions that embarrass or hurt others	0	1	2	3	NS
32	Controls feelings when he/she doesn't get own way.	0	1	2	3	NS
33	Expresses feelings appropriately (e.g., in a calm voice).	0	1	2	3	NS
34	Offers help before needing to be asked.	0	1	2	3	NS
35	Modifies his/her behavior in accordance to social situation (e.g., quiets down when entering a library, auditorium, etc.).	0	1	2	3	NS
36	Keeps personal information to self.	0	1	2	3	NS
37	Talks with others when it does not interfere with work.	0	1	2	3	NS
38	Acts upon instructions given.	0	1	2	3	NS
Self-esteem						
39	Accurately evaluates own abilities (i.e., doesn't over/under estimate).	0	1	2	3	NS
40	Accepts compliments	0	1	2	3	NS
Wariness						
44	Takes precautions in being safe from intruders at home (e.g., locks windows, locks doors, doesn't open door to stranger).	0	1	2	3	NS
45	Acts in such a way as to ensure his/her safety in the community.	0	1	2	3	NS
48	Shows good judgment in selecting friends.	0	1	2	3	NS
49	Recognizes whom to trust when making an important decision.	0	1	2	3	NS
51	Resists people when they are pressuring or manipulating him/her to do something that may not be in his/her interest.	0	1	2	3	NS
55	Takes appropriate precautions to avoid dangerous people or situations.	0	1	2	3	NS
Naïveté						
56	Defends self from verbal attacks.	0	1	2	3	NS
Follows Rules/Obeys Laws						

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

Social Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

58	Obeys laws.	0	1	2	3	NS
59	Follows rules and regulations when playing games (e.g., board games, sports, etc.).	0	1	2	3	NS
61	Reads and obeys common signs (e.g., Do Not Enter, Exit, or Stop).	0	1	2	3	NS
Manners						
62	Responds to hints or indirect social cues in conversation. (e.g., yawning, looking at their watch, etc.).	0	1	2	3	NS
63	Says "Thank you," "I'm sorry," "Excuse me," etc. when appropriate.	0	1	2	3	NS
64	Says "hello" or "hi" and "good-bye" or "bye" when coming and going.	0	1	2	3	NS
65	Shows concern for the feelings of others.	0	1	2	3	NS
66	Stands a comfortable distance from others during conversations, as appropriate for culture.	0	1	2	3	NS
67	Uses appropriate table manners.	0	1	2	3	NS
68	Waits for appropriate moment in a conversation to speak.	0	1	2	3	NS
69	Enters an activity area or show without disrupting others.	0	1	2	3	NS
70	Waits turn when wanting to use an object in use by someone else.	0	1	2	3	NS
72	Moves out of the way of someone needing to get by.	0	1	2	3	NS
73	Shows emotions/feelings appropriately.	0	1	2	3	NS
74	Tolerates other's values when they differ from his/her own.	0	1	2	3	NS
75	Correctly anticipates other people's behavior/actions.	0	1	2	3	NS
76	Recognizes different emotions expressed by others.	0	1	2	3	NS
Social Problem-solving						
77	Makes compromises to resolve conflicts.	0	1	2	3	NS
78	Adjusts behavior to different situational demands.	0	1	2	3	NS
79	Appropriately responds to social cues from others used to express their emotional state (e.g., anger, difference of opinion, etc.).	0	1	2	3	NS
80	Uses a variety of strategies that are effective in resolving social problems.	0	1	2	3	NS
81	Maintains mutually satisfying relationships.	0	1	2	3	NS
82	Identifies problems when they occur.	0	1	2	3	NS
83	Responds appropriately to humor.	0	1	2	3	NS
85	Correctly identifies a problem with others (e.g., argument, conflict, etc.).	0	1	2	3	NS

Comments:

Appendix B (cont.)

Diagnostic Adaptive Behavior Scale Form 9-15 Years Old

Please return all completed and unused DABS protocols to:

Marc J. Tassé, Ph.D.
DABS Project
Nisonger Center
The Ohio State University
1581 Dodd Dr./McCampbell Hall
Columbus, OH 43210

Appendix C

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

D ❖ A ❖ B ❖ S

DIAGNOSTIC ADAPTIVE BEHAVIOR SCALE

Form 16-21 Years Old

STANDARDIZATION VERSION

PLEASE DO NOT COPY / DO NOT CITE / DO NOT DISTRIBUTE

NOVEMBER 2009

aaidd
American Association on Intellectual and Developmental Disabilities

AAIDD *ad hoc* Committee & Authors:

Marc J. Tassé, PhD (Co-chairman), The Ohio State University; Robert L. Schalock, PhD, Hastings College(Co-chairman); Giulia Balboni, PhD, Università della Valle d'Aosta – Italy; Hank Bersani, Jr., PhD., Western Oregon University; Sharon A. Borthwick-Duffy, PhD, University of California – Riverside; Julia Scherba de Valenzuela, PhD, University of New Mexico; Scott Spreat, EdD, Woodland Center for Challenging Behaviors; David M. Thissen, PhD, University of North Carolina at Chapel Hill; Keith F. Widaman, PhD, University of California – Davis; Dalun Zhang, PhD, Texas A&M University.

 1

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

PERSON ASSESSED:

UNIQUE ID: _____
(to be completed by researcher)

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

- ☐ American Indian or Alaska Native[1]
- ☐ Asian[2]
- ☐ Black or African American[3]
- ☐ Hispanic or Latino[4]
- ☐ Native Hawaiian or Other Pacific Islander[5]
- ☐ White[6]
- ☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

School: _____ Current grade level: _____

Type of classroom placement:

- ☐ General education[1]
- ☐ Special education – less than half-day[2] (specify: _____)
- ☐ Special education – half-day or more[3] (specify: _____)
- ☐ Other[4] (specify: _____)
- ☐ Not applicable[2] (i.e., not attending school)

Highest grade level completed: ____ Obtained GED: Yes[1] ☐ No[2] ☐

Employment Status: Full-time[1] ☐ Part-time[2] ☐ Unemployed[3] ☐ Not applicable[4] ☐ (i.e., minor)

Verified Condition *(check all that apply)*:

- ☐ Mental retardation/intellectual disability[1]
- ☐ Visual impairment/blindness[2]
- ☐ Physical disability[3]
- ☐ Hearing impairment/deafness[4]
- ☐ Emotional disturbance/mental health problem[5]
- ☐ Developmental delay[6]
- ☐ Other health impairment/chronic health condition[7]
- ☐ Speech/language impairment[8]
- ☐ Learning disability[9]
- ☐ Autism spectrum disorder[10]
- ☐ Traumatic brain injury[11]
- ☐ Attention-deficit/hyperactivity disorder (ADHD)[12]
- ☐ Other[13] (specify: _____)

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

2

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

RESPONDENT 1:

Date Completed: _____/_____/_____
MM DD YYYY

Date of Birth: _____/_____/_____
MM DD YYYY

Gender: Female[1] ☐ Male[2] ☐

Race and Ethnicity *(mark one or more)*:

☐ American Indian or Alaska Native[1]
☐ Asian[2]
☐ Black or African American[3]
☐ Hispanic or Latino[4]
☐ Native Hawaiian or Other Pacific Islander[5]
☐ White[6]
☐ Other[7] (specify: _____)

State of Residence: _____ Zip Code of Residence: _____

Highest Education Level:

☐ Elementary school[1]
☐ Some high school[2]
☐ Completed high school/GED[3]
☐ Some college[4]
☐ Completed college[5]

Primary Language Spoken: English[1] ☐ Spanish[2] ☐ Other[3] ☐ (specify: _____)

Born in the United States: Yes[1] ☐ No[2] ☐ If "NO" – Total number of years living in the United States: _____

Relationship to Person Assessed:

☐ Mother[1]
☐ Father[2]
☐ Sibling[3]
☐ Grandparent[4]
☐ Aunt/Uncle[5]
☐ Caregiver[6]
☐ Teacher[7]
☐ School counselor[8]
☐ Peer/Friend[9]
☐ Other[10] (specify: _____)

Number of Years Respondent Has Known the Person Assessed: _____

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

INTERVIEWER:

First Name: _____ Middle Initial: _____ Last Name: _____

Date of Birth: _____/_____/_____ Gender: Female[1] ☐ Male[2] ☐
MM DD YYYY

Race and Ethnicity *(mark one or more)*:

☐ American Indian or Alaska Native[1]
☐ Asian[2]
☐ Black or African American[3]
☐ Hispanic or Latino[4]
☐ Native Hawaiian or Other Pacific Islander[5]
☐ White[6]
☐ Other[7] (specify: _____)

Employer/Affiliation: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: (_____)_____ E-mail: _____

Job Title (mark one):

☐ Psychologist[1]
☐ Psychometrician[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Teacher[5]
☐ Graduate student[6] (specify discipline: _____)
☐ Other[7] (specify: _____)

Highest Education Level Completed (mark one):

☐ Bachelor[1]
☐ Master[2]
☐ Doctoral[3]
☐ Other[4] (specify: _____)

Discipline/Major of Highest Level Completed:

☐ Psychology[1]
☐ Education[2]
☐ Social work[3]
☐ Counseling[4]
☐ Occupational therapy[5]
☐ Applied behavior analysis[6]
☐ Other[7] (specify: _____)

Professional Licensure/Certification:

☐ School psychologist[1]
☐ Psychologist[2]
☐ Social worker[3]
☐ Counselor[4]
☐ Occupational therapist[5]
☐ Board certified behavior analyst[6]
☐ Teacher[7]
☐ Other[8] (specify: _____)

Number of Years of Professional Experience: _____

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

CONCEPTUAL SKILLS

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Reading and Writing					
29	Completes job applications.	0	1	2	3	NS
31	Looks up needed information in dictionary, encyclopedia, or computer.	0	1	2	3	NS
41	Reads important documents (e.g., class registration, school/work policies, credit card application).	0	1	2	3	NS
42	Reads menus at restaurants.	0	1	2	3	NS
43	Reads tags to find clothing of the correct size in a store.	0	1	2	3	NS
44	Reads the time printed on a schedule.	0	1	2	3	NS
46	Makes a list (e.g., things to do, things to buy).	0	1	2	3	NS
47	Writes complex sentences such as in letters, E-mails, or other notes.	0	1	2	3	NS

	Money Use					
48	Can tell the value of monetary bills of different denominations.	0	1	2	3	NS
49	Checks for correct change after buying an item.	0	1	2	3	NS
50	Gives clerk the correct amount of money to buy an item.	0	1	2	3	NS
51	Makes purchases after comparing similar products to determine the better value.	0	1	2	3	NS
52	Manages own money.	0	1	2	3	NS
53	Purchases items by telephone, internet, or other medium.	0	1	2	3	NS
54	Selects a snack or meal which he/she has sufficient money to buy.	0	1	2	3	NS
55	Saves money to buy something special (e.g., a birthday present, game, or special clothes).	0	1	2	3	NS
56	Plans how to spend his/her money.	0	1	2	3	NS
57	States value (in cents) of penny, nickel, dime, and quarter.	0	1	2	3	NS

	Self-direction					
58	Arranges to get to an event or activity he/she likes.	0	1	2	3	NS
59	Makes plans to complete projects in logical steps.	0	1	2	3	NS
60	Plans ahead for leisure, vacation, or recreation	0	1	2	3	NS
61	Makes own appointments (e.g., doctor, dentist, leisure activity).	0	1	2	3	NS
62	Makes own choices among activities, events, or circumstances.	0	1	2	3	NS
63	Makes decisions about important life events (this might involve others as necessary).	0	1	2	3	NS
64	Understands concepts of personal rights (e.g., human rights, respect & dignity).	0	1	2	3	NS
67	Talks about sexual concerns with appropriate person.	0	1	2	3	NS
69	Goes out during the day.	0	1	2	3	NS

 5

Conceptual Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Time					
72	Tells time using an analog clock or watch correctly to the minute.	0	1	2	3	NS
74	Shows an understanding of time equivalents (e.g., "9:15" is the same as "quarter past nine").	0	1	2	3	NS
75	Sets a clock or watch to the correct time.	0	1	2	3	NS
76	Sets clock or watch in accordance to daylight savings time (i.e., Spring) or standard time (i.e., Fall).	0	1	2	3	NS
80	Uses a clock or other timepiece to determine when it is time to do something (e.g., go to school/work, go home).	0	1	2	3	NS
83	Associates time on clock or other timepiece with various actions and events	0	1	2	3	NS
84	Makes it to events/appointments at correctly scheduled time (e.g., a doctor's appointment).	0	1	2	3	NS

	Numbers/Measures					
86	Uses fractions like ½, ⅓, and ¼ during activities (e.g., using a recipe, sharing something, splitting a reward).	0	1	2	3	NS
88	Uses mathematical operatives (e.g., +, –, X, /) in activities (e.g., adding numbers, balancing checkbook, etc.).	0	1	2	3	NS
89	Using numerical symbols (e.g., $, =, %, "decimal point," etc.).	0	1	2	3	NS
90	Demonstrates understanding of temperature in relation to weather (e.g., that 100 degrees F. is very warm, 20 degrees F. is cold).	0	1	2	3	NS
91	Demonstrates understanding of weight (e.g., own body weight, weighing of produce).	0	1	2	3	NS
92	Uses ruler or tape measure to measure length.	0	1	2	3	NS

Comments:

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

Social Skills

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Interpersonal					
10	Arranges events or activities with a group of friends.	0	1	2	3	NS
11	Accepts an invitation to attend an event or activity.	0	1	2	3	NS
12	Dresses appropriately for special occasions (e.g., job interview, wedding, etc.)	0	1	2	3	NS
13	Arrives prepared for a special event (e.g., job interview, party, funeral).	0	1	2	3	NS
14	Makes plans with friends to go out (e.g., movies, sporting event, etc.).	0	1	2	3	NS
24	Goes places with friends.	0	1	2	3	NS
25	Interviews for a new job.	0	1	2	3	NS
	Responsibility					
36	Keeps personal information to self.	0	1	2	3	NS
37	Talks with others when it does not interfere with work.	0	1	2	3	NS
	Wariness					
40	Avoids being victimized.	0	1	2	3	NS
41	Resists when someone is urging him/her to do something illegal or wrong.	0	1	2	3	NS
42	Avoids relationships that are hurtful or exploitative.	0	1	2	3	NS
43	Recognizes signs that someone may wish to harm him/ her.	0	1	2	3	NS
44	Takes precautions in being safe from intruders at home (e.g., locks windows, locks doors, doesn't open door to stranger).	0	1	2	3	NS
45	Acts in such a way as to ensure his/her safety in the community.	0	1	2	3	NS
46	Can tell when someone is lying to him/her.	0	1	2	3	NS
47	Recognizes signs that someone is trying to exploit him/ her.	0	1	2	3	NS
48	Shows good judgment in selecting friends.	0	1	2	3	NS
49	Recognizes whom to trust when making an important decision.	0	1	2	3	NS
50	Recognizes when someone is trying to manipulate them (e.g., peer trying to get them to do something that will he/she really doesn't want to do, pushy salesperson, etc.).	0	1	2	3	NS
51	Resists people when they are pressuring or manipulating him/her to do something that may not be in his/her interest.	0	1	2	3	NS
52	Recognizes when a situation or gathering might pose dangers.	0	1	2	3	NS
53	Recognizes when a relationship is exploitative or hurtful.	0	1	2	3	NS
54	Recognizes when his/her rights are being violated.	0	1	2	3	NS
55	Takes appropriate precautions to avoid dangerous people or situations.	0	1	2	3	NS

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Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

Social Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Naïveté						
56	Defends self from verbal attacks.	0	1	2	3	NS
57	Takes necessary precautions to protect self from physical attacks.	0	1	2	3	NS
Follows Rules/Obeys Laws						
58	Obeys laws.	0	1	2	3	NS
60	Shows understanding when his/her actions may get him/her in trouble with the law.	0	1	2	3	NS
61	Reads and obeys common signs (e.g., Do Not Enter, Exit, or Stop).	0	1	2	3	NS
Manners						
71	Contacts people at an appropriate time of day (e.g., not during usual sleeping hours).	0	1	2	3	NS
74	Tolerates other's values when they differ from his/her own.	0	1	2	3	NS
75	Correctly anticipates other people's behavior/actions.	0	1	2	3	NS
Social Problem-solving						
80	Uses a variety of strategies that are effective in resolving social problems.	0	1	2	3	NS
81	Maintains mutually satisfying relationships.	0	1	2	3	NS
84	Implements effective coping strategies during stressful situations (e.g., relaxation, self-talk, etc.).	0	1	2	3	NS
85	Correctly identifies a problem with others (e.g., argument, conflict, etc.).	0	1	2	3	NS

Comments:

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

PRACTICAL SKILLS

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

	Activities of Daily Living					
18	Plans to bring extra clothing for change in weather.	0	1	2	3	NS
23	Takes appropriate-size portions from family-style serving dishes.	0	1	2	3	NS
24	Washes dishes or loads/unloads the dishwasher and puts them away.	0	1	2	3	NS
	Occupational Skills					
25	Gets permission before leaving a work area.	0	1	2	3	NS
26	Respects workplace safety rules.	0	1	2	3	NS
27	Takes good care of work supplies and equipment.	0	1	2	3	NS
28	Transitions from one task to another.	0	1	2	3	NS
29	Reports broken equipment.	0	1	2	3	NS
30	Reports work-related accidents.	0	1	2	3	NS
31	Requests needed tools and materials.	0	1	2	3	NS
32	Works at a steady pace for more than 15 minutes.	0	1	2	3	NS
33	Works at a steady pace for more than 30 minutes.	0	1	2	3	NS
34	Completes the correct sequence of a multi-step work task.	0	1	2	3	NS
35	Completes difficult tasks.	0	1	2	3	NS
36	Maintains steady work pace and quality under pressure.	0	1	2	3	NS
37	Follows instructions.	0	1	2	3	NS
38	Completes work assignments.	0	1	2	3	NS
39	Organizes materials before starting a large project.	0	1	2	3	NS
	Use of Money					
40	Uses bank/debit card to withdraw money or make a purchase.	0	1	2	3	NS
41	Pays bills on, or before, due date.	0	1	2	3	NS
42	Buys needed personal-care items (e.g., toothpaste, soap, deodorant, etc.).	0	1	2	3	NS
43	Makes purchases after comparing quality and price.	0	1	2	3	NS
44	Makes simple purchases (e.g., buy bread, milk, etc.).	0	1	2	3	NS
45	Uses banking services.	0	1	2	3	NS
46	Makes purchases relative to his/her budget/means.	0	1	2	3	NS

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

Practical Skills (continued)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Maintains Safe Environment / Safety						
48	Safely uses household cleaning products (e.g., laundry detergent, window cleaner).	0	1	2	3	NS
49	Properly stores dangerous household cleaning products (e.g., poisonous, corrosive, etc.).	0	1	2	3	NS
50	Throws out spoiled food.	0	1	2	3	NS
51	Takes appropriate steps to keep foods from spoiling.	0	1	2	3	NS
52	Safely uses small electrical appliances (e.g., toaster, microwave, etc.).	0	1	2	3	NS
53	Safely uses electrical hand tools (e.g., drill, sander, etc.).	0	1	2	3	NS
54	Uses caution around electrical outlets	0	1	2	3	NS
55	Uses caution when around hot surfaces.	0	1	2	3	NS
56	Shows an understanding of when to dial 911 or equivalent emergency number to get emergency assistance (e.g., fire).	0	1	2	3	NS
57	Gets to a safe location before the arrival of a severe storm.	0	1	2	3	NS
58	Evacuates a building when necessary.	0	1	2	3	NS
59	Puts medicine in a safe place.	0	1	2	3	NS
62	Swims safely.	0	1	2	3	NS
63	Rides only with people known to him/her.	0	1	2	3	NS
64	Complies with safety procedures.	0	1	2	3	NS
Healthcare						
68	Obtains medical care when ill.	0	1	2	3	NS
69	Gets a prescription filled	0	1	2	3	NS
70	Takes own temperature when feeling ill.	0	1	2	3	NS
71	Takes medication as indicated.	0	1	2	3	NS
72	Wears clean clothes	0	1	2	3	NS
Travel/Transportation						
74	Travels to recreation activities.	0	1	2	3	NS
75	Makes local travel arrangements.	0	1	2	3	NS
76	Gets directions or help if lost or unsure of where to go (e.g., uses map, GPS, phone, asks for assistance).	0	1	2	3	NS
Schedules/Routines						
77	Gets out of bed on time.	0	1	2	3	NS

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

PRACTICAL SKILLS (CONTINUED)

Rating System:

"0" No – **rarely or never** does it.
"1" Yes – does it **with reminders or assistance** but rarely or never independently.
"2" Yes – does it **sometimes independently** – but sometimes needs reminders or assistance.
"3" Yes – does it **always or almost always independently** – never or rarely needs reminders or assistance.
"NS" **No Score** – has a physical impairment that impedes performance of this skill. / No Score – lacks opportunity due to cultural, gender, and/or geographic/regional factors / No Score – lacks opportunity due to environmental constraints. / No Score – the respondent has no direct knowledge of the individual's typical performance.

Use of Telephone						
79	Answers the telephone.	0	1	2	3	NS
80	Finds a telephone number in a telephone or internet directory.+	0	1	2	3	NS

Comments:

Appendix C (cont.)

Diagnostic Adaptive Behavior Scale Form 16-21 Years Old

Please return all completed and unused DABS protocols to:

Marc J. Tassé, Ph.D.
DABS Project
Nisonger Center
The Ohio State University
1581 Dodd Dr./McCampbell Hall
Columbus, OH 43210

Appendix D

Supports Intensity Scale for Children Field Test Version 1.1

Supports Intensity Scale for Children
Field Test Version 1.1

American Association on Intellectual and Developmental Disabilities
July 6, 2009

James R. Thompson - Illinois State University

Michael Wehmeyer - University of Kansas

Susan R. Copeland - University of New Mexico

Carolyn Hughes – Vanderbilt University

Todd D. Little - University of Kansas

Shea Obremski - University of Kansas

James R. Patton - University of Texas

Ed Polloway - Lynchburg College

Rodney E. Realon - North Carolina Mental Health, Developmental Disabilities and Substance Abuse Services

Robert Schalock – Schalock Consultants

Debbie Shelden – Illinois State University

Marc J. Tassé – University of South Florida

Supports Intensity Scale for Children (SIS–Children) - Field Test Version 1.1
July 6, 2009

OVERVIEW

The *Supports Intensity Scale (SIS) for Children* provides a standardized procedure and a reliable and valid means to measure the relative intensity of support needs of children with intellectual disabilities and related developmental disabilities. An intellectual disability is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. These limitations create a mismatch between what a child is able to do and what the environment requires (for a child of a similar age and from a similar culture), which results in needing types and patterns of support that most other children do not need.

HOW THE SIS-CHILDREN IS DIFFERENT FROM AN ADAPTIVE BEHAVIOR SCALE

Adaptive behavior (AB) scales measure aspects of conceptual, practical, and social intelligence. Completing AB scales involve making judgments about whether a person does or does not typically perform specific observable skills and tasks. In contrast, the *SIS-Children* requires judgments to be made about the frequency, duration, and type of supports that a child needs to successfully participate in a wide range of life activities. Therefore, when completing the *SIS-Children* the focus is not on what specific, skills or tasks the child is able to do, but rather on what types of support the child needs to receive in order to fully participate in a variety of activities.

INSTRUCTIONS FOR FIELD TEST

- The *SIS-Children* is scored by an **interviewer**. Interviewers should have completed at least a bachelor-level degree. However, under exceptional circumstances, others who have experience conducting individual assessments and possess an extensive knowledge of behavior rating or psychological testing principles may be acceptable. Interviewers should also have several years of direct work experience with people with intellectual and closely related developmental disabilities. Finally, interviewers should know how to request and verify information from respondents.
- An **interviewer** must collect information from at least **two respondents** when completing the SIS for Children. The interview collects information from the respondents and is responsible for scoring each item. The interviewer may (a) interview respondents separately or (b) interview two or more respondents at the same time (making it a **group interview**).
- **Respondents** are individuals who know the child very well, and could include parents and other family members, teachers, or direct support staff. If the interviewer knows the child well, he/she can also serve as one of the respondents. It is also possible for the child with a disability to be a respondent.
- The *SIS-Children* is made of up two sections. In **Part 1 – Exceptional and Medical Support Needs** the interviewer must place an **"X"** in the appropriate square to indicate the relative intensity of support needed associated with a variety of medical conditions and behavioral problems. In **Part 2 – Support Needs Scale 1** the interviewer must rate the child in relationship to three rating measures. An **"X"** should be placed in the appropriate square (0-4) for each item.
- Every item must be completed. Complete all items, even if the child is not currently performing a listed activity. In this case, ask the respondent to use his or her judgment to estimate the nature of support he or she feels would be necessary for the child to be successful in the activity.
- Scores should reflect the supports that would be necessary for this child *to be successful* in each activity. *To be successful* is defined as engagement in all aspects of an activity as judged against contemporary school and community standards and resulting in maximal involvement (i.e., full

participation) of the child in an activity. In other words, successful engagement entails a level of performance/involvement/participation in an activity that is comparable to that of typically functioning peers without disabilities.

- Each item makes an assumption that the child has the opportunity to participate at levels potentially requiring maximum frequency, time, and type of support. Therefore, respondents should remember that ratings can reflect this maximum level of potential activity.

GUIDE TO RATING ITEMS IN PART 1 – EXCEPTIONAL MEDICAL AND BEHAVIORAL SUPPORT NEEDS

Special medical and behavioral concerns are identified in this section of scale. It is assumed that certain medical conditions and challenging behaviors can dictate that a child will require substantial levels of support, regardless of his or her relative intensity of support needs in other life areas assessed in Part 2 - Support Needs Scale. For example, children who have significant support needs due to ostomy care are likely to need significant levels of support in their daily life, regardless of their needs in the areas of home living, school learning, etc. Using the 3-point Likert rating scale (0 = no support needed; 1 = some support needed; 2 = extensive support needed), the interviewer assesses the individual's intensity of support need for each medical and behavioral item.

Exceptional Medical Needs

The critical question to answer when completing the **medical** items is "What is the significance of the following medical conditions for this child in regard to extra support required?"

Rating options are:

0 = No Support Needed;
1 = Some Support Needed (i.e., providing monitoring and/or occasional assistance);
2 = Extensive Support Needed (i.e., providing regular assistance to manage the medical condition or behavior).

If the child does not have the condition, score the item "0" for *No Support Needed*. If the child has the condition and *some* extra support is required (e.g., perhaps a small amount of time each day is devoted to monitoring or otherwise managing the condition, and people who support the individual must be cognizant continuously of the condition in order to assure the individual's health and safety), then score the item a "1" *for Some Support Needed*. If the child has the condition and *significant* extra support is required (e.g., perhaps several hours a day are devoted to managing the condition, and the condition poses an important health and safety risk for the individual), then score the item a "2" for *Extensive Support Needed*. There is definitely a gray area between the "some" and "extensive" support needed. This is inherent in quantifying (i.e., applying a specific number) a construct such as support needs. Support needs will vary along a continuum; that is, there are in actuality fine gradations in the intensities of needs for different individuals. In cases that seem to fall between "some support needed" and "extensive support needed," respondents are encouraged to use their best judgment and whenever possible consult with additional respondents.

Exceptional Behavioral Needs

The critical question to answer when completing the **behavioral** items is "What is the significance of the following challenging behaviors for this child in regard to extra support required?"

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

Rating options are:

0 = No Support Needed;
1 = Some Support Needed (i.e., providing monitoring and/or occasional assistance);
2 = Extensive Support Needed (i.e., providing regular assistance to manage the medical condition or behavior).

If the behavior is not an issue and the child does not display the behavior, then score the item "0" for *No Support Needed*. If the child displays the behavior and some extra support is required (e.g., perhaps a small amount of time each day is devoted to monitoring or otherwise managing the behavior and those who interact with the individual must be continuously aware of the behavior in order to assure the health and safety of the individual as well as others in the child's presence), then score the item "1" for *Some Support Needed*. If the child displays the behavior and significant extra support is required (e.g., perhaps several hours a day are devoted to monitoring or otherwise managing the behavior, and the behavior poses an important health and safety risk for the individual or others in the environment), then score the item "2" for *Extensive Support Need*.

As with exceptional medical needs, distinguishing between "some" and "extensive" support can be difficult. When attempting to determine whether an item should be scored a "1" or a "2" for borderline cases, the interviewer may want to consider the severity of the consequences of the behavior. For example, if "property destruction" were a concern, it would be important to consider how much damage the child could actually do if the behavior were to occur in the worst case scenario and how life threatening the property destruction could be. A child who had engaged in destroying an entire room (e.g., break furniture, smash a television) would pose a more serious risk than a child who is likely to destroy only objects such as toys. It would also be considered more dangerous if the child typically engaged in breaking windows with his fist versus punching seat cushions on a couch. It would be best to score the item as a "2" if there is a real risk that the behavior could have very significant consequences (e.g., health hazard, violation of the law). However, if the behavior (in an extreme instance) is likely to have less intensive consequences, it would be best to score the item a "1".

Review of Key Guidelines for Part 1 – Exceptional Medical and Behavioral Needs

- Rate all items; if an item is not an issue for a child, rate it as a "0"
- When distinguishing between "some" (rating of 1) and "extensive" (rating of 2) support, consider (a) consulting with additional individuals to get additional input, (b) the time involved in providing supports, and (c) the consequences of either the behavior or medical condition (Is the child likely to become seriously ill? Does the challenging behavior have the potential to threaten the health and safety of the child or others?).
- If a child experiences one or more medical conditions or challenging behaviors that are not on the list in **Part 1 – Exceptional Medical and Behavioral Needs**, it is essential to list these under the "other" category. Items listed under "other" carry the same weight and influence as those identified in the scales.

GUIDE TO RATING ITEMS FOR PART 2: SUPPORTS NEED SCALE

Items in Part 2 – Support Needs Scale, are rated across three dimension of support intensity: Frequency (how often is extraordinary support needed?), Time (how much time by another human being is needed to provide extraordinary support), and Type (what is the nature of the extraordinary support that is provided?).

Rating TYPE

When rating Type of Support, the respondent should focus on the following:

If a child were to engage in the activity on a regular basis over the next several months, what would be the nature of the extraordinary support (i.e., assistance that most typically functioning peers would not need) that others would need to provide to enable the individual to be successful in the activity. **This dimension of support is concerned with identifying the characteristics of the support that is provided by others.** Although different types of support are needed for any activity (e.g., verbal prompting and partial physical assistance may both be involved), the respondent is asked to identify which type of support *best characterizes or most dominates the* assistance that is provided.

Rating options are:
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Rating FREQUENCY

When rating *FREQUENCY*, the respondent should focus on answering the following question:

If this child were to engage in this activity on a regular basis over the next several months, **how often** would he/she would require someone (teacher, residential staff, teacher's aid, peer, community volunteer) to provide support to him/her *that most typically functioning children of the same age would not need*?

This dimension of support is concerned with identifying **how often** extra support needs to be provided by others. This dimension of support is **NOT** concerned with how often the child actually engages in an activity. There are many good reasons why a child may or may not choose to participate in an activity on a regular basis. However, for purposes of completing the *SIS-Children*, the scoring must be based on the support necessary if the child were to engage in the activity on a regular basis over the next several months.

Rating options are:
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Rating Amount of DAILY SUPPORT TIME (DST)

When rating *Amount of Daily Support Time* (DST), the respondent should focus on answering the following question:

If this child were to engage in the activity on a regular basis over the next several months - during the course of a typical day (24 hours), how much total daily time would be needed to provide extraordinary supports (i.e., types of assistance that most typically functioning children would not need) to enable the individual to be successful in the activity? This "extra time" might be needed very regularly (e.g., every day) or it might be needed more episodically (e.g., once every two weeks). However, it is of vital importance for interviewers to understand that this dimension does not take frequency into account. Rather, the focus is on the total daily time that is needed to provide extraordinary supports (i.e., types of assistance that most typically functioning children would not need) on the days when the support is needed.

This rating estimates the amount of time needed to provide the support across a TYPICAL day when the support is needed. A day is defined as 24 hours. Thus, whether the support is needed everyday or very infrequently, on a typical day when the support is needed – during that 24-hour cycle – how much total, cumulative time needs to be devoted to providing the support?

Rating options are:
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

GUIDELINES WHEN DETERMINING RATINGS IN PART 2 – SUPPORT NEEDS SCALE

A. Consider Multiple Tasks Within An Activity.

If the activity contains multiple elements, then greater emphasis should be placed on the essential element(s) that are at the heart of the activity when determining ratings; *however, the secondary elements should also be considered.* The task for respondents is to provide a rating that reflects their perception of a valid composite rating of primary and secondary elements. For example, Item #3 (Keeping self clean and properly groomed) of Part 2 - Section A (Home Living Activities) includes bathing, washing hands, keeping oneself clean during meals and snacks, combing hair, brushing teeth, and in

general maintaining a kempt appearance (based on age expectations – standards of appearance for a 6 year old are different than standards for a 15 year old). An example for applying these guidelines to the three ratings is provided below:

- If the child requires only verbal/gestural prompting to do the essential element of bathing, but needs partial physical assistance for maintaining a kempt appearance, and full physical assistance for combing hair, then a type of support rating of "3" (partial physical assistance) is justified. In this example, enough physical assistance is needed to complete the activity of "Keeping self clean and properly groomed" on a regular basis to justify a composite rating of "3- partial physical assistance" for "type of support".
- If the child only occasionally needed extraordinary support that same aged peers would not need for the essential element of bathing (i.e., for most baths the child did not need any extraordinary support), and also only occasionally needed extra support for the secondary elements of the activity, then a Frequency rating of "1" would be the accurate rating; 1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support. To justify the higher rating of "2", extra support will need to be provided for about half of the occurrences of the activity.
- If approximately 30 minutes of daily support time was required for the essential element of "bathing" on a typical day that the individual took a bath or shower and regular assistance was needed for washing hands, keeping oneself clean during meals and snacks, combing hair, brushing teeth, maintaining a kempt appearance, etc., requiring at least an additional 60 minutes a day, then the typical daily support time would be 90 minutes. Therefore, a DST rating of "2" (30 minutes to less than 2 hours) would be the correct rating that best reflects daily support time in its entirety. In this example, *the bathing is a relatively quick process and there is <u>not</u> enough extra time required on a daily basis to complete the secondary tasks to justify a higher composite rating of "3" (2 hours but less than 4 hours).*

B. <u>Assess the Individual's Support Needs Holistically.</u>

The individual's skill level, use of assistive technology, motivation, health, behavior, and safety/vulnerability must all be considered when determining ratings. People should be rated in accordance with their current status and functioning. **Rate children exactly the way they are today.**

If an individual uses assistive technology, the person should be rated with said technology in place. That is, it is important to factor in the assistive technology that the person uses on a regular basis when making the ratings. However, ratings should <u>not</u> be based on the intensity of support a person might require if their use of assistive technology might change in the future. If assistive technology is not yet used or is not yet available to the person, it should not be considered when completing the SIS. For example, an individual might need less support in "Participating in activities in common school areas (e.g., playground, hallways, cafeteria)" if he had access to a motorized wheelchair. However, because this person does <u>not</u> have access to a motorized wheelchair, ratings on the SIS should reflect the reality of his situation and the support he needs due to (a) his disabilities and (b) the lack of appropriate AT. In many cases, the intensity of an individual's support needs will decrease when provided with appropriate AT.

C. <u>Base Ratings on School and Community Environments.</u>

Ratings should be referenced to settings (i.e., school, home, community) used by the general population. For example, ratings such as those related to school should be based on schooling in general education settings. This is not to say that a planning team must conclude the least restrictive education setting for each child is always the general education classroom when developing an IEP. However, ratings on the Children's SIS should always be based on general education settings not on specialized environments.

D. <u>Do Not Consider Services and Supports the Person is Currently Receiving.</u>

Ratings should be made for each activity without regard to the services or supports currently provided by other people. Moreover, ratings should not be altered because of the availability of natural supports. That is, in instances where a neighborhood friend provides extraordinary support to an individual child (e.g., the friend helps the child identify which school bus to board at the end of the school day), the child should still be rated as needing the extraordinary support.

E. Pay Close Attention to the Verb Used in the Item Stem.

The rating should consider the action verb that is used in the stem of the activity, since some verbs may reflect a greater level of activity and therefore more support. For example, *getting to school* includes transportation, whereas *participating in test taking and evaluation activities* assumes that one is already there. *Keeping track of personal belongings* involves the use of money and potential vulnerability issues. *Interacting with friends, family and community members* is not as complex of an activity as is *making and keeping friends*.

Review of Key Guidelines for Part 2 – Support Needs Scale

- Consider multiple tasks within an activity
- Assess a child's support needs holistically
- Base ratings on settings used by the general population (e.g., items related to classroom learning activities should be considered in regard to general education classrooms, not special class settings)
- Do not consider services or supports the child is currently receiving
- Pay close attention to the verb used in the item stem

THANK YOU FOR PARTICIPATING IN THIS FIELD TEST

Children's SIS: Demographic Information:

Part A. Information about the interviewer

Name: _____ **Agency/School:** _____ **City, State:** _____

Gender: ❑ Male ❑ Female **Education:** ❑ HS Diploma ❑ 2-yr. degree ❑ BS/BA ❑ Master's Degree ❑ Doctoral Degree

Ethnic Background: ❑ White – Non-Hispanic ❑ Black – Non-Hispanic ❑ Asian/Pacific Islander ❑ Native People ❑ Hispanic

❑ Multiple ethnic backgrounds ❑ Other (specify _____)

Years of Work Experience in Services to Children or Youth with Disabilities: _____ **years**

Current Workplace Location: ❑ Urban/suburban ❑ Rural

Interviewer relationship to child: _____ **number of years known child:** _____

Part B. Information about the respondents

Respondent #1: relationship to child: _____ **number of years known child:** _____

Respondent #2: relationship to child: _____ **number of years known child:** _____

Part C. Information about the child being rated

Gender: ❑ Male ❑ Female **Age:** _____ years, _____ months

IQ Level: ❑ <25 or profound ❑ 25-39 or severe ❑ 40-55 or moderate ❑ 55-70 or mild

Adaptive Behavior Level: ❑ profound ❑ severe ❑ moderate ❑ mild

Ethnic Background: ❑ White – Non-Hispanic ❑ Black – Non-Hispanic ❑ Asian/Pacific Islander ❑ Native People ❑ Hispanic

❑ Multiple ethnic backgrounds ❑ Other (specify _____)

Home Residence: ❑ Family Home ❑ Foster family home ❑ Small group home (<7 residents) ❑ Midsize group home (7-15 residents)

❑ Large residential school/facility (>15 residents) ❑ Other residential facility (specify _____)

Presence of disabilities (check all that apply): ❑ Intellectual disability/mental retardation ❑ Low vision/Blindness

❑ Deafness/hearing impairment ❑ Psychiatric disability ❑ Developmental delay ❑ Physical disability: Arm/hand limitations

❑ Physical disability: Mobility limitations ❑ Chronic health condition ❑ Autism Spectrum Disorder (ASD) ❑ Brain/neurological damage

❑ Speech disorder ❑ Language disorder ❑ Learning disability ❑ Attention Deficit Hyperactivity Disorder (AD/HD) ❑ Other (specify)

_____

Primary language understood: ❑ English ❑ Spanish ❑ French ❑ Other (specify _____)

List of Assistive Technologies the Child Uses: _____

Section II. Estimates of Support Needs

Instructions: Interviewers, Please read the name and description of each support domain, and request that each respondent rate the child's support needs on a scale of 1 to 5 using the following criteria. Please stress that ratings should be made in relation to typically functioning children of the same age.

No extra support needed		Medium support needed		Total support needed
1	2	3	4	5

Respondent #1:

Home Living Activities *Activities completed as a function of living in a household*	**Community & Neighborhood Activities** *Activities completed as a function of being a member of a community or neighborhood*	**School Participation Activities** *Activities associated with participating in the school community*	**School Learning Activities** *Activities associated with acquiring knowledge and/or skills while attending school*	**Health and Safety Activities** *Activities that assure safety and health across home, school, and community environments.*	**Social Activities** *Activities that pertain to social integration with others, both children and adults.*	**Advocacy Activities** *Activities related to acting as a causal agent in one's life, making choices and decisions, and availing oneself of leadership opportunities.*
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Respondent #1: Rate the child's **overall** support needs by circling the appropriate number (1-5) relative to other children the same age

No extra support needed		Medium support needed		Total support needed
1	2	3	4	5

Respondent #2:

Home Living Activities *Activities completed as a function of living in a household*	**Community & Neighborhood Activities** *Activities completed as a function of being a member of a community or neighborhood*	**School Participation Activities** *Activities associated with participating in the school community*	**School Learning Activities** *Activities associated with acquiring knowledge and/or skills while attending school*	**Health and Safety Activities** *Activities that assure safety and health across home, school, and community environments.*	**Social Activities** *Activities that pertain to social integration with others, both children and adults.*	**Advocacy Activities** *Activities related to acting as a causal agent in one's life, making choices and decisions, and availing oneself of leadership opportunities.*
1 2 3 4 5	**1 2 3 4 5**	**1 2 3 4 5**	**1 2 3 4 5**	**1 2 3 4 5**	**1 2 3 4 5**	**1 2 3 4 5**

Respondent #2: Rate the child's **overall** support needs by circling the appropriate number (1-5) relative to other children the same age

No extra support needed		Medium support needed		Total support needed
1	2	3	4	5

PART I: EXCEPTIONAL MEDICAL AND BEHAVIORAL NEEDS

(Item descriptions on following pages)

0 = No Support Needed;
1 = Some Support Needed (i.e., providing monitoring and/or occasional assistance);
2 = Extensive Support Needed (i.e., providing regular assistance to manage the medical condition or behavior).

MEDICAL			
Respiratory care			
Inhalation or oxygen therapy	0	1	2
Postural drainage	0	1	2
Chest PT	0	1	2
Suctioning	0	1	2
Feeding assistance			
Oral stimulation or jaw positioning	0	1	2
Tube feeding (e.g., nasogastric)	0	1	2
Parenteral feeding (e.g., IV)	0	1	2
Skin care			
Turning or positioning	0	1	2
Dressing of open wound(s)	0	1	2
Other exceptional medical care			
Protection from infectious diseases due to immune system impairment	0	1	2
Seizure management	0	1	2
Dialysis	0	1	2
Ostomy care	0	1	2
Lifting and/or transferring	0	1	2
Eating Disorders	0	1	2
Therapy Services	0	1	2
Allergies	0	1	2
Diabetes Management	0	1	2
Other(s) – List all that apply			
_____	0	1	2
_____	0	1	2

BEHAVIORAL			
Externally-directed destructiveness			
Prevention of assaults or injuries to others	0	1	2
Prevention of property destruction (e.g., fire setting, breaking furniture)	0	1	2
Prevention of stealing	0	1	2
Self-directed destructiveness			
Prevention of self-injury	0	1	2
Prevention of pica (ingestion of inedible substances)	0	1	2
Prevention of suicide attempts	0	1	2
Sexual			
Prevention of sexual aggression	0	1	2
Prevention of non-aggressive but inappropriate sexual behavior	0	1	2
Other exceptional behavioral concerns			
Prevention of tantrums or emotional outbursts	0	1	2
Prevention of wandering	0	1	2
Prevention of substance abuse	0	1	2
Maintaining mental health treatments	0	1	2
Prevention of Truancy	0	1	2
Other(s) – List all that apply			
_____	0	1	2
_____	0	1	2
_____	0	1	2

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

Item Descriptions for Exceptional Medical and Behavioral Support Needs

Descriptions of Exceptional Medical Needs

Item	Description
Respiratory care	
Inhalation or oxygen therapy	Uses of a nebulizer or oxygen
Postural drainage	Needs positioning to help drain secretions/mucus in the lungs
Chest PT	Needs chest physical therapy to help with drainage of secretions
Suctioning	Needs suctioning of secretions
Feeding assistance	
Oral stimulation or jaw positioning	Needs physical assistance or oral stimulation to help with feeding
Tube feeding (e.g., nasogastric)	Uses a nasogastric or gastrostomy tube for feeding
Parenteral feeding (e.g., IV)	Uses an intravenous tube for feeding
Skin care	
Turning or positioning	Needs assistance with repositioning or turning in chair or bed to prevent sores
Dressing of open wound(s)	Needs assistance with the cleaning and dressing of open sores

Descriptions of Exceptional Behavioral Needs

Item	Description
Externally-directed destructiveness	
Prevention of assaults or injuries to others	Hits, punches, kicks, bits or intentionally harms others
Prevention of property destruction	Breaks windows, damages furniture, sets fires, defaces property, etc.
Prevention of stealing	Steals/takes other people's property, shoplifts, etc.
Self-directed destructiveness	
Prevention of self-injury	Engages in head banging, eye gouging, skin picking, cutting, etc.
Prevention of pica (ingestion of inedible substances)	Eats cigarette butts, paper, or other objects
Prevention of suicide attempts	Attempts to hurt oneself with the intention of suicide
Sexual	
Prevention of sexual aggression	Engages in pedophilia, sexual assault, etc.
Prevention of non-aggressive but inappropriate behavior	Masturbates in public places, exhibitionism

Item Descriptions for Exceptional Medical and Behavioral Support Needs Continue on Next Page

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

Descriptions of Exceptional Medical Needs

Item	Description
Other exceptional medical care	
Protection from infectious diseases due to immune system impairment	Requires universal precautions to prevent infections due to weakened immunity system or infectious disease
Seizure management	Needs medication and seizure precautions and management
Dialysis	Uses peritoneal or hemodialysis
Ostomy care	Needs colostomy care
Lifting and/or transferring	Needs assistance for lifting and transferring to and from chair, bed, etc.
Eating disorders	Needs assistance to manage eating, including the refusal to eat
Therapy services	Needs occupational therapy, psychological therapy, speech-language therapy, individual or group psychotherapy
Allergies	Needs assistance to avoid triggers for allergic reactions, and managing allergic reactions (e.g., epi-pen)
Diabetes Management	Needs assistance managing childhood diabetes
Other(s) – List all that apply	Should include a listing of any exceptional medical needs that are not accounted for in the previous items

Descriptions of Exceptional Behavioral Needs

Item	Description
Other exceptional behavioral concerns	
Prevention of tantrums or emotional outbursts	Screams, curses, throws objects, threatens violence
Prevention of wandering	Runs away, wanders off – risk of getting lost or potentially injured
Prevention of substance abuse	Engages in excessive consumption of alcohol, misuses prescription medication, uses illegal drugs or other toxic substances (e.g., sniffing glue, paint)
Maintaining mental health treatments	Includes taking psychotropic medication, attending appointments, and complying with treatment
Prevention of Truancy	Prevention of missing school for reasons other than health or family death
Other(s) – List all that apply	Should include a listing of any behavioral concerns that are not accounted for in the previous items

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

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PART II: SUPPORTS NEEDS SCALE

PART II. Support Needs Scale **Section A: Home Life Activities**	**TYPE**				**FREQUENCY**				**DAILY SUPPORT TIME**			
1. Completing household chores	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Eating	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Washing and keeping self clean	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Dressing	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Using the toilet	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Sleeping and/or napping	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Keeping track of personal belongings at home	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Keeping self occupied during unstructured time (free time) at home	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9. Operating electronic devices	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section A: Home Living	**Item Descriptions**
1. Completing household chores	Supports needed to (a) maintain personal belongings by keeping an orderly bedroom, putting away toys, etc., and (b) contribute to chores that serve the common good of all household members (e.g., cleaning up after supper).
2. Eating	Supports needed to: (a) facilitate ingestion of food through the mouth, chewing, and swallowing; (b) assisting with utensils and teaching utensil use; (c) cut food on plate; (d) assist the individual with positioning to facilitate swallowing and digestion (where relevant); (e) support a person during tube feeding (waiting, checking for residuals, flushing the tube with water etc.); and (f) regulate food intake (i.e., preventing choking, eating too fast, or eating too much).
3. Washing and keeping self clean	Supports needed to: (a) ensure safety in getting in and out of the shower; (b) take a shower or bath; (c) brush teeth, wash hair, hair care, wash hands; (d) keep clean during meals; (e) keep clean throughout the day.
4. Dressing	Supports needed to: (a) put clothes on, including zippers, snaps, buckles, and laces; (b) select clothes appropriate for the day's activities; and (c) choose weather appropriate clothing.
5. Using the toilet	Supports needed: (a) for accessing the bathroom (e.g. mobility, getting to the bathroom, operation of the door; communicating the need to use the bathroom; (b) during all steps in toileting (e.g. undoing clothes, fasteners, etc., pulling down clothes, re-buckling, re-snapping etc., pulling up clothes, assisting an individual to get on and off the toilet, changing briefs, cleaning self and washing hands); (e) for moving out of the bathroom and back to a previous activity; (d) in using a catheter or other alternatives for voiding; and (e) in all activities necessary for the person to void in a manner that is socially acceptable. Supports to promote dignity and privacy should also be included.
6. Sleeping and/or napping	Supports needed to remain in bed and sleep throughout the nighttime (e.g., awake caregiver, behavioral supports, alarm system) as well as supports necessary during nap times (napping may only apply to youngest children).
7. Keeping track of personal belongings at home	Supports needed to manage personal belongings at home such as getting and retrieving things from bedroom, securing money and other valuables, and keeping track of personal items such as toys and toiletries.
8. Keeping self occupied during unstructured (free time) at home	Supports needed to engage self in enjoyable and/or productive activities during unstructured time at home.
9. Operating electronic devices	Supports needed to operate computers, toys, and entertainment devices such as a radios, TVs, and DVD players.

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

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PART II. Support Needs Scale Section B: Community and Neighborhood Activities	TYPE					FREQUENCY					DAILY SUPPORT TIME				
1. Moving around the neighborhood and community	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Participating in leisure activities that require physical activity	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Participating in leisure activities that do not require physical exertion	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Using public services in one's community or neighborhood.	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Participating in community service and religious activities.	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Shopping	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Complying with basic community standards, rules, and/or laws	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Attending special events in the community or neighborhood such as cookouts/picnics, cultural festivals, music/art fairs, or holiday oriented events	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section B: Community & Neighborhood Activities	Item Descriptions
1. Moving around the neighborhood and community	Supports to travel around from one setting to another. This includes knowing directions, using public transportation, car, or other modes of mobility. Vulnerability concerns should be considered.
2. Participating in leisure activities that require physical activity	Supports to take part in recreation activities such as participation on a sports team, dance class, or informal physical play in a neighbor's back yard, at a park playground, or at a local pool.
3. Participating in leisure activities that do not require physical exertion	Supports to participate in hobbies, crafts, board games, video games, concerts, museum, and other forms of passive entertainment (e.g., watching a baseball game).
4. Using public services in one's community or neighborhood	Supports to access and use a bank, post office, or library (includes running errands to such locations with family members). Also includes maintaining behavior appropriate for such settings.
5. Participating in community service and religious activities	Supports to participate in activities involving volunteerism, places of worship, habitat for humanity, and community or religious related social activities.
6. Shopping	Supports to make shopping list, locate items, request assistance, maintain behavior appropriate in stores/mall, and count change from purchases. Include supports for catalog shopping and internet shopping (which is considered a virtual community).
7. Complying with basic community standards, rules, and/or laws	Supports to reside in the community, observing the community's standards, rules, and laws.
8. Attending special events in the community or neighborhood such as cookouts/picnics, cultural festivals, music/art fairs, or holiday oriented events	Supports to attend special events in a community or neighborhood that only occur occasionally.

Appendix D (cont.)

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PART II. Support Needs Scale Section C: School Participation Activities	TYPE					FREQUENCY					DAILY SUPPORT TIME				
1. Being included in general education classrooms	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Participating in activities in common school areas (e.g., playground, hallways, cafeteria)	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Participating in co-curricular activities	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Getting to school (includes transportation)	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Moving around within the school and transitioning between activities	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Participating in large-scale test taking activities required by state education systems	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Following classroom and school rules	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Keeping track of personal belongings at school	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9. Keeping track of schedule at school	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section C: School Participation Activities	Item Description
1. Being included in general education classrooms	Supports to participate in a general education classroom setting during structured as well as unstructured times.
2. Participating in activities in common school areas (e.g., playground, hallways, cafeteria)	Includes support to visit and use common school areas such as hallways (to get to and from classes and/or other business), playgrounds (for informal/unstructured play as well as organized activities that might be part of a class or co-curricula activity), and cafeterias.
3. Participating in co-curricular activities	Supports to participate in co-curricular activities, such as school clubs and teams.
4. Getting to school (includes transportation)	Supports to get to and from school.
5. Moving around within the school and transitioning between activities.	Supports to move throughout the school during structured as well as unstructured parts of the school day and to transition between activities and classes.
6. Participating in large-scale test taking activities required by state education systems.	Supports to participate in state level assessments, including high-stakes tests. Includes implementing reasonable accommodations and modifications.
7. Following classroom and school rules	Supports to participate in the school community without violating classroom or school rules.
8. Keeping track of personal belongings at school	Supports to manage personal belongings at school such as getting and retrieving things from school lockers, keeping and spending lunch money, keeping possession of text books, etc.
9. Keeping track of schedule at school	Supports to be at the right place at the right time and engage in classroom routines (e.g., settling down and paying attention when teacher begins lesson).

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

PART II. Support Needs Scale Section D: School Learning Activities	TYPE					FREQUENCY					DAILY SUPPORT TIME				
1. Accessing grade level curriculum content	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Learning academic skills	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Learning and using metacognitive strategies	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Completing academic tasks (e.g., time, quality, neatness, organizational skills)	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Learning how to use and using educational materials, technologies, and tools	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Learning how to use and using problem solving and self-regulation strategies in the classroom	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Participating in classroom level evaluations, such as tests	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Accessing the health and physical education curricula	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9. Completing homework assignments	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section D: School Learning Activities	Item Descriptions
1. Accessing grade level curriculum content	Supports for participating in classes where content is tied to state and district curriculum standards and objectives (e.g., benefiting from Universal Design of curriculum, actively participating in cooperative learning groups, benefiting from differentiated instruction)
2. Learning academic skills	Supports for learning content that is associated with core academic subjects such as reading, writing, mathematics, science, and social studies (e.g., learning through curricula and instructional modifications such as graphic organizers, content enhancement routines, direct instruction, peer supports, or individual tutoring using explicit instructional practices).
3. Learning and using metacognitive strategies	Supports to learn and use metacognitive strategies (i.e.., use of mnemonics, learning strategies, test-taking and study strategies, clustering) to complete school assignments and promote independent learning and generalization of skills.
4. Completing academic tasks (e.g., time, quality, neatness, organizational skills)	Supports to complete assignments in core academic subjects such as reading, writing, mathematics, science, and social studies (e.g., teaching students to use specialized technology, determining reasonable accommodations).
5. Learning how to use and using educational materials, technologies, and tools	Supports to learn and use educational materials (e.g., worksheets, books), technologies (e.g., computers, calculators) and tools (e.g., scissors, pencils).
6. Learning how to use and using problem solving and self-regulation strategies in the classroom	Supports to learn and use problem solving and self-regulation strategies for social, personal, and behavioral purposes, such as time management, self-instruction, and self-reinforcement techniques, while in classroom settings.
7. Participating in classroom evaluations, such as tests	Supports to participate in evaluations within the general education classroom, for formative or summative assessment of learning goals and objectives. Includes any planning for adaptations as well as implementing accommodations and modifications.
8. Accessing the health and physical education curricula	Supports to learn health (e.g., how to prevent illnesses, basic first aid, healthy nutritional practices) and physical education (e.g., exercise, participation in individual or team sports or games) skills.
9. Completing homework assignments	Supports to identify homework assignments, organize materials and time to complete assignments, secure homework for submission, and submit homework to the proper teachers at school.

Appendix D (cont.)

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PART II. Support Needs Scale Section E: Health & Safety Activities	TYPE					FREQUENCY					DAILY SUPPORT TIME				
1. Communicating health related issues and medical problems, including aches and pains	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Maintaining physical fitness	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Maintaining emotional well-being	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Maintaining health and wellness	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Implementing routine first aid when experiencing minor injuries such as a bloody nose	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Responding in emergency situations	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Protecting self from physical, verbal, and/or sexual abuse	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Avoiding health and safety hazards	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section E: Health & Safety Activities	Item Descriptions
1. Communicating health related and medical problems including aches and pains	Supports to: (a) communicate health care concerns and needs to caregivers and medical professionals; (b) participate in a doctor's office visits.
2. Maintaining physical fitness.	Supports to: (a) select and plan activities for physical fitness; (b) select physical fitness options; and (c) access activities and facilities for maintaining fitness.
3. Maintaining emotional well-being	Supports to communicate emotional needs, using coping strategies to manage emotional issues including anxiety, and anger.
4. Maintaining health and wellness.	Supports to maintain good daily health and engage in wellness activities such as those intended to relieve stress.
5. Implementing routine first aid when experiencing minor injuries such as a bloody nose	Supports to avoid infection and respond appropriately to minor injuries (e.g., wash a scratch and apply a bandage).
6. Responding in emergency situations	Supports to: (a) learn and use a Personal Emergency Response System when needed; (b) plan access to emergency services (e.g. putting emergency numbers on refrigerator); (c) plan and practice responses to prepare for emergencies (e.g., participate in school/family emergency fire drills); and (d) respond appropriately in an emergency (e.g., tell an adult if there is a fire or call the appropriate emergency number).
7. Protecting self from physical, verbal, and/or sexual abuse	Supports to learn, practice, and use skills relevant to: (a) recognizing and avoiding abuse; and (b) defending self against abuse.
8. Avoiding health and safety hazards	Supports to (a) complete routine activities of daily living (e.g., walk up and down steps, play by a street) without great risk for injury and (b) recognize dangerous situations and personal vulnerability (at home and school) including reading safety and danger signs regarding hazards and poisons.

Appendix D (cont.)

Supports Intensity Scale for Children Field Test Version 1.1

PART II. Support Needs Scale Section F: Social Activities	TYPE				FREQUENCY				DAILY SUPPORT TIME			
1. Maintaining positive relationships with others	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Respecting the rights of others	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Maintaining conversation	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Responding to and providing constructive criticism	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Coping with changes in routines and/or transitions across social situations	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Making and keeping friends	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Communicating with others in social situations	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Respecting others personal space/property	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9. Protecting self from exploitation and bullying	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
2 = Frequently; in order for the child to participate in the activity, extra support will need to be provided for about half of the occurrences of the activity.
3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section F: Social Activities	Item Descriptions
1. Maintaining positive relationships with others	Supports to facilitate/promote verbal or non-verbal (e.g. use of sign language, gestures that others understand, writing or using augmentative communication) social interaction that is meaningful to the person and others.
2. Respecting the rights of others	Supports to recognize the rights of others as well as to not infringe upon others' opportunities to take advantage of and enjoy life experiences.
3. Maintaining conversation	Supports to communicate necessary information to others either verbally or non-verbally (e.g. use of sign language, gestures that others understand, writing or using augmentative communication) as well as observe common conversational parameters relating to topics (e.g. there are some things that one should not talk about with a stranger) and length (important not to go on an on, or consistently repeat what others have just said). Also includes listening skills essential to conversation.
4. Responding to and providing constructive criticism	Supports to respond to constructive criticism provided by family members, teachers, peers, coaches, or dance instructors in a positive manner (e.g. without taking offense). Includes supports to provide constructive feedback to others in a positive way.
5. Coping with changes in routines and/or transitions across social situations	Supports needed when routines or plans change. Also supports to transition from one activity to another.
6. Making and keeping friends	Supports to communicate with peers, learn social skills related to friendships such as initiating contact and displaying interest in joining activities with friends, locating programs/activities that lead to friendship, and using the phone and other communications (e.g. computer, text messaging, voice mail, e-mail) to maintain friendships.
7. Communicating with others in social situations	Supports to communicate to others about past experiences, moods, preferences, choices, concerns, etc. in both structured and unstructured social situations.
8. Respecting others personal space/property	Supports to be in home, school, and community and respecting other's personal property and personal space.
9. Protecting self from exploitation and bullying	Supports to recognize when peers and adults are attempting to (a) exploit (includes financial exploitation), (b) bully, and/or (c) deceive.

Appendix D (cont.)

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PART II. Support Needs Scale Section G: Advocacy Activities	TYPE					FREQUENCY					DAILY SUPPORT TIME				
1. Expressing preferences	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2. Setting personal goals	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
3. Taking action and attaining goals	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
4. Making choices and decisions	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
5. Advocating for and assisting others	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
6. Learning and using self-advocacy skills	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
7. Communicating personal wants and needs	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
8. Participating in educational decision making	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9. Learning and using problem solving and self-regulation strategies in the home and community	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4

Type of Support
0=none
1=monitoring
2=verbal/gestural prompting
3=partial physical assistance
4=full physical assistance

Frequency of Support
0 = Negligible; the child's support needs are rarely if ever different than same-aged peers in regard to frequency.
1 = Infrequently; the child will occasionally need someone to provide extraordinary support to him/her that same-aged peers will not need, but on most occasions will not need any extra support.
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3 = Very Frequently; in most occurrences of the activity the child will need extra support that same aged peers will not need; only occasionally will the child not require any extra support.
4 = Always; on every occasion that the child participates in the activity, the child will need extra support that peers of the same chronological age will not need

Daily Support Time
0=none.
1=less than 30 minutes
2=30 minutes to less than 2 hours
3=2 hours to less than 4 hours
4=4 hours or more

Section G: Advocacy Activities	Item Descriptions
1. Expressing preferences	Supports to express personal preferences, including identifying and communicating wants, needs, and interests.
2. Setting personal goals	Supports to set short and long range personal goals. This includes identifying aspirations and plans, as well as setting specific goals and milestones to accomplish.
3. Taking action and attaining goals	Supports to take action to achieve short and long term goals, including deciding and implementing an action plan linked to the goal, tracking progress toward goal attainment, and modifying the goal or action plan as needed based upon that evaluation.
4. Making choices and decisions	Supports to: (a) understand that choices and decisions are related to consequences and responsibilities; (b) identify people or things that influence a choice and/or decisions; (c) assess opportunities to make choices and decisions and types/level of importance; and (d) make good decisions and understand the consequences of various decisions.
5. Advocating for and assisting others	Supports to: (a) identify opportunities and situations in which one should advocate for others; (b) involvement in self-advocacy organizations, civic activities, and civic events; and (c) assist others when they are not able or allowed to speak out for themselves or express personal preferences.
6. Learning and using self-advocacy skills	Supports to learn self-determination and self-advocacy skills (e.g., explain needed accommodations and modifications to a teacher, express preferences and make choices, participate in Individual Education Plan development).
7. Communicating personal wants and needs	Supports to speak up for oneself (or communicating) and to exercise control over one's life; learning to advocate in an effective manner and to express personal preferences, needs and wants in ways that maximize the potential that they will be achieved.
8. Participating in educational decision making	Supports needed (a) for the person to understand and express preferences concerning learning options and goals; and (b) to participate in Person Centered Planning processes or Individual Education Plan development (including the time involved in such plan meetings).
9. Using problem solving and self-regulation strategies in the home and community	Supports to learn and use problem solving and self-regulation strategies for social, personal, and behavioral purposes, such as time management, self-instruction, and self-reinforcement techniques outside of classroom settings.

Appendix D (cont.)

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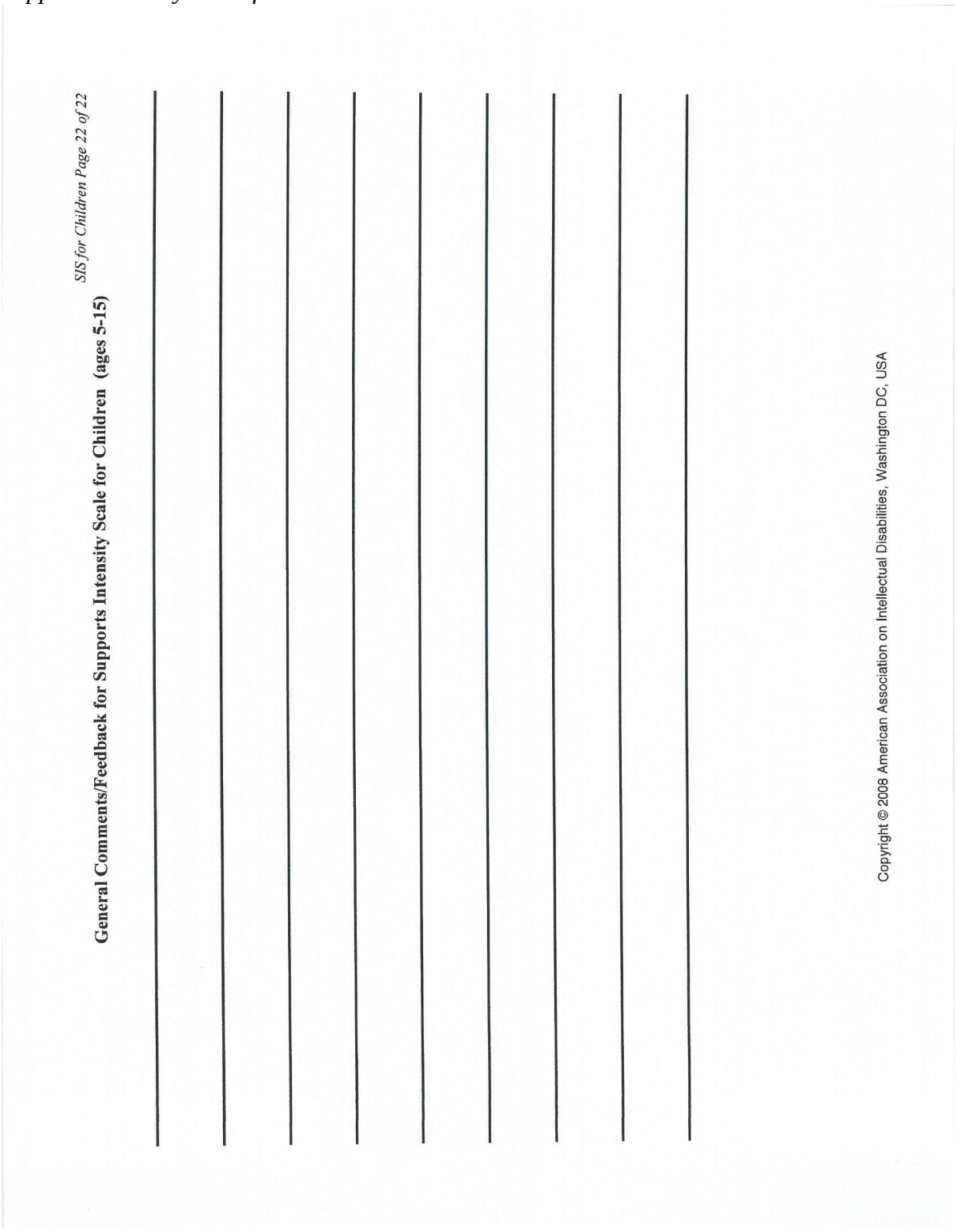

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General Comments/Feedback for Supports Intensity Scale for Children (ages 5-15)